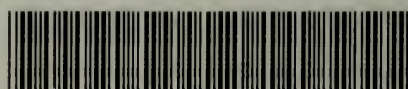
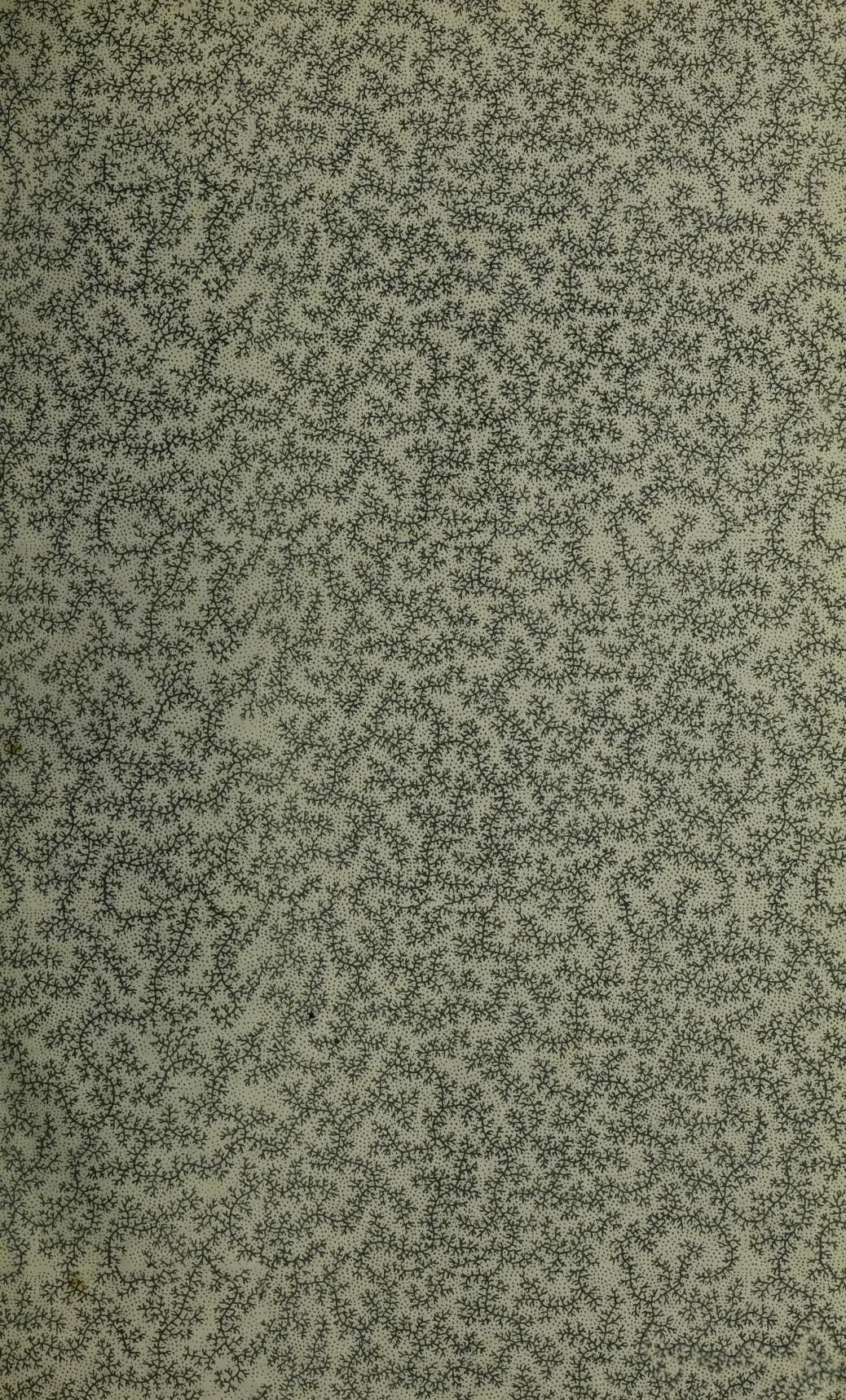


Fort Ancient,
Ohio.
Warren K. Moorehead.



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C. J. Strong, Photo.

PLATE I.—A Portion of the East Walls in the New Fort, Stations 2 to 4.

Frontispiece.

With Miss Millard's Compliment

FORT ANCIENT

THE GREAT PREHISTORIC EARTHWORK

OF

WARREN COUNTY, OHIO

COMPILED FROM A CAREFUL SURVEY

WITH AN ACCOUNT OF ITS

MOUNDS AND GRAVES

A TOPOGRAPHICAL MAP, THIRTY-FIVE FULL-PAGE PHOTO-
TYPES, AND SURVEYING NOTES IN FULL

BY

WARREN K. MOOREHEAD

MISS MILLARD,
TEDDINGTON, MIDDLESEX.

1890

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TO MY GRANDMOTHER,

MRS. BETSY KENDALL KING,

THIS, MY FIRST WORK ON AMERICAN ARCHÆOLOGY, IS

Affectionately Dedicated,

IN RECOGNITION OF THE CARE AND THE LOVE WHICH SHE HAS SO
CONSTANTLY AND PATIENTLY BESTOWED UPON ME.

PREFACE.

Three years ago, during one of my visits to Fort Ancient, it occurred to me to write, at some time in the future, an extended account of this earth-work. The opportunity presented itself this summer. With a corps of competent workers I have gone over the entire structure many times, and have carried on a work which, I trust, will need no additional researches to complete.

In writing this book, I intend to confine myself entirely to Fort Ancient, with perhaps the exception of mentioning a few similar earth-works in the Ohio valley.

To Mr. Gerard Fowke I am greatly indebted for valuable suggestions as to the methods of the work, and also for a statement of the geological features of the vicinity.

The surveying was done by Messrs. Fowke and Cowen, and the greatest care taken to avoid any chance of error; two sets of notes were kept and compared every night, and frequent check stations made to insure accuracy.

The map was drawn by Mr. Clinton Cowen, and comparison will show that, for correctness and style of execution, it equals if not surpasses any map to be found in a work on American archæology.

To Mr. Alfred Cowdin, of Morrow, Ohio, I am especially indebted for his great courtesy in allowing excavations and explorations to be carried on, which frequently destroyed a great deal of pasturage and crops. He gave me unlimited privilege to examine the earth-work, and to "do any thing except tear it all down." As

he has allowed no previous explorers to examine and survey this earth-work, I feel very grateful for his kindness in the matter.

To Mr. George Ridge (who owns fourteen acres of Fort Ancient) is due my thanks for his kind permission to excavate, explore, and work upon his portion of the structure. The stone pavement we uncovered lies under his house and in his front yard, yet he made no objections to our digging a large hole in the sod and flower-beds, in order that we might examine it.

Mr. Van Riper, who owns land bordering on the Little Miami river, a part of which was planted in corn, very kindly accorded me permission to excavate in search of village sites within his bounds. In the progress of our researches, unfortunately, nearly half an acre of corn was destroyed, for which Mr. Van Riper would take no compensation. I wish to tender him my sincerest thanks.

There are others who assisted me in various ways, gave me permission to excavate, and whose services should be mentioned. Among these, Mr. Chester Poor, of Springdale, Mr. Perry Wolfe, Mr. John Hughes, and Mr. Howard Wright, of Fort Ancient, deserve especial thanks.

To Mr. C. J. Strong, of Cincinnati, I am under the greatest obligations. He made five trips to Fort Ancient from the city, leaving many important business duties, that he might take photographs of the embankments and excavations. The views were repeatedly taken, in order that the very best pictures possible might be secured.

Mr. Fred. Biddle, of Xenia, also photographed various parts of the inclosure.

In the execution of this work, the main object which the writer has steadily kept in view is this: To set before the public, in as brief and exact a manner as possible, the prominent features and the wonders of this ancient mon-

ument of human skill, and to insist upon its purchase and preservation by some historical or scientific association. If either of these ends should be accomplished, he will feel he has not labored in vain; how much more, if both should be.

The honest endeavor has been to throw some little light upon the history of this place, the purpose for which it was erected, etc. How far the work is successful is left to the kindly judgment of the reader. The history of the structures which we find throughout the Ohio valley is as important and as interesting to our country as are the Pyramids to Egypt.

I shall endeavor to confine myself to facts, and do but little "theorizing." It is from the *facts*, not from theories, that conclusions are to be drawn.

I trust the work will accomplish the mission I have assigned it.

WARREN K. MOOREHEAD.

FORT ANCIENT, WARREN COUNTY, O.,

September 20, 1889.

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FORT ANCIENT.

CHAPTER I.

GENERAL DESCRIPTION OF THE FORTIFICATION AND THE SURROUNDING COUNTRY.

On a slightly rolling plateau in Warren county, Ohio, overlooking the beautiful valley of the Little Miami river, is situated Fort Ancient, the greatest of all prehistoric earth-works in the Mississippi basin.

The fortification on one side follows the edge of the plateau, while at the eastern extremity it lies fully a quarter of a mile from the river valley. The side farthest away from the river (or toward the east) is 19 feet higher than the western portion. This will be readily noticed, if the reader will turn to page 20, where a map of the fortification is given, and note two cross-sections, one being taken across the southern portion of Fort Ancient, the other across the northern extension.

Just to the west of the structure, and extending north and south for the same distance as the length of the fortification, there is a broad and fertile valley. Above and below the extent of the inclosure the valley narrows, but immediately opposite it widens to fully half a mile. The length of the valley north and south is not quite one mile.

The soil of the valley is exceedingly fertile, and excellent crops are raised yearly by the resident farmers.

The Pittsburg, Cincinnati and St. Louis railroad passes through the valley on the east side, following the curves of the river. The Lebanon and Chillicothe turn-pike, coming from the west, descends the hill, crosses the

river, and ascends the eastern hill, passing through a portion of the northern part of Fort Ancient.

The station on the railroad is named in honor of the earth-work, "Fort Ancient." The post-office has the same name. The village consists of one small hotel, two warehouses, a country store, and six dwellings. In winter, it is the most lonesome spot in the state.

Just above the little valley described, the hills on each side of the river approach within 300 feet of each other, and leave barely room for the river and railroad to pass between. Below the fortification, the hills come nearer together, being about 290 feet apart at the base. The valley thus shut in would be a capital place for a large aboriginal village, and, as we shall see later on, for such purpose it was frequently used.

The river makes great bends and is very tortuous, in order to pass around the high hills; hence, the railroad following these curves is very crooked. It is upon the high hill at the south that the fort wall approaches nearest the river, the nearest point being about 200 yards distant.

The height of the plateau above low-water stage is 269 feet. The height of station 1 in the survey above low-water stage is 291 feet. (The wall there is 22 feet in altitude; the plateau is 19 feet higher than the original level just within the eastern wall.)

The height of the embankment at station 1 above the Atlantic ocean level is 941 feet. Although the distance around the inclosure (following the center of the embankment) is 18,712.2 feet, the structure is so irregular and crooked that a straight line drawn from station 389, in the northern portion of the fortification, to station 187, in the southern part of the earth-work, shows a distance of but 4,993 feet, or less than one mile.

Leaving the railroad station to ascend to the fortification, we climb up a long, steep hill, over a very winding road. The view of the valley from this hill is very beautiful and commanding. The road is the Lebanon and

Chillicothe turnpike, and in ascending it makes a very great bend to the north. It never curved toward the south, although some writers upon Fort Ancient in their maps of the structure have made the pike as turning around the hill in this, the wrong direction.

When the summit of the hill is reached, we see towering above a mass of foliage the first or western wall of the inclosure. The pike strikes this wall at one of the highest points.

NOTE.—In this book there are a number of terms and names connected with certain portions of the structure that will be used constantly. In order to become thoroughly familiar with these, turn to the map on page 20, and note the following places and names:

New Fort.—That portion of Fort Ancient lying north of the Crescent Gateway, or north of the Isthmus.

Old Fort.—That portion of Fort Ancient south of the Great Gateway; the irregular part lying south of the Isthmus on the map.

Great Gateway.—The dividing mounds at the south end of the Isthmus, which are marked stations 103 and 285, and which separate the structure into the Old and New Forts. These stations are on their highest points.

Isthmus.—The narrow neck which divides the structure almost into halves.

Crescent Gateway.—The wing walls which run out from stations 306 and 89.

The space between these and the Great Gateway is known as the *Middle Fort*.

These terms, we trust, are now clear to all readers, and such being the case, we will proceed with the discussion of the fortification.

As we approach the wall, we notice on the right a deep ravine. We notice how strongly the wall is built at this point, for the slope to the valley below is more gentle than in most places, therefore the embankment is doubly strengthened. The height of the wall here is about 19 feet, the breadth of the base about 70 feet.

On the north side of the pike, considerably left of the

center of the embankment, is a layer of stone extending horizontally for a distance of about 10 feet, and being about three or four stones in thickness. (These are shown in Plate III, at page 25.)

These stones lie as if they had once formed a rude wall, which may have been a great deal higher than it now is. These are limestones, which may have been brought from the river far below, or from the ravines and hillsides near at hand. There is an abundance of this kind of stone near the fortification in every direction. Judging from outward appearance, these stones are somewhat worn. However, as limestone disintegrates rapidly in the atmosphere, almost as much so as it does in gently running water, this appearance may be due to exposure in the ravines and hill-sides near at hand. It is probable that they came from running water at a distance.

The roots of the small tree shown in the illustration have pulled some of these rocks out of their original positions, but to the left of the tree several will be seen lying just as they were placed there many centuries ago. The stones weigh about 15 or 16 pounds each, and are placed about six feet from the bottom of the wall, or five feet from the top, and lie a little to the left of the center. This peculiarity of the wall being filled in with stone, has been noticed in a great many places in the fort, and it will be referred to at length later on.

After we have passed through this cut in the embankment, we are on the great plain inclosed in the area of the New Fort. This plain is quite level, and is cultivated.

Plate II, at page 20, is a folding map of Fort Ancient; this is made from a very careful survey. The survey and map alone occupied the entire time of two men for six weeks.

In the appendix to this work will be found all the surveying notes, stations, and distances, as taken from the field-books of the surveyors. A careful examination of the large map will put the reader in possession of the more marked peculiarities of Fort Ancient. He will notice ditches in some places on the interior of the wall,

and in others on the exterior. He will observe that there is very little regularity of embankment; that the mounds inclosed within the walls are very small; and that the embankment in all cases follows the land on the side next to the deep gorges. But before we enter into a discussion of this map it will be well to speak of Fort Ancient from a geologist's point of view.

The elevation upon which the fortification lies is a very interesting geological formation. A good idea of the structure of the hill and its external appearance on the river side, can be obtained by walking south on the railroad track. This track follows the base of the hill for nearly one-third of the distance of the fortification above, and it can be plainly seen from the embankment above in autumn when the trees are stripped of their foliage. It will be noticed that the hill presents a very irregular outline, as there are numerous ravines coming out from it. These ravines do not cross the railroad track and empty into the river; the soil in the river bottom is very sandy, and the water brought down from the hills by the ravines is quickly absorbed; there is no wash, no erosion. The points of land or rounded hillocks between the ravines are mostly gravel. The presence of this gravel in the localities referred to is due to glaciers or icebergs. The points are quite round, and of so regular outline that they have frequently been mistaken for mounds. But they are natural, not artificial. The valley was probably a lake formed by a dam or gorge of ice at the lower end.

When this valley was a lake, the icebergs and cakes of ice, which carried more or less gravel, were floating around in it, and many of them driven by winds or drifted by currents, stranded on the hill, and there deposited their loads of gravel. The slope of the hill was once all gravel, and probably presented a regular appearance. It is rather peculiar that while such extensive deposits are found on this (the east) side, there should be none, or but very little, on the opposite or western side of the river. The numerous ravines have cut out a great deal of the

gravel, and have given it the present irregular outline. We dug into a number of these rounded points, and found glacial gravel less than a foot from the surface. Back farther on the high ground, where the fort lies, the drift is not so heavy, and is mostly clay. Immediately below this glacial clay lie the limestone and clays of the Cincinnati group, which comprise the greater part of the hill, and extend downward for several hundred feet. This limestone, as all know, is exceedingly rich in organic remains, and the entire Miami valley is noted among geologists as a field for fossils. Some of the largest palæontological collections in the state are owned in the neighborhood of Fort Ancient, the one at Waynesville being the most prominent. Fine trilobites and beautiful crinoids are found in this blue limestone and the clay with which it is interstratified, and geologists have been known to come hundreds of miles to this point to obtain specimens for study, and for their collections.

In order fully to understand the map, it would be well for the reader to begin at the point where we began in the survey, and make the circuit with us. The instrument was set just south of the Lebanon and Chillicothe pike on the east side of the northern section of the fort where the road passes out. This is "station 0," from which we make all calculations and measurements. Plate IV, at page 29 in this work, shows the stretch of embankment from station 0 to station 7. This view was taken at 1,000 feet distance, and the camera was pointed east. The frontispiece, Plate I, shows two sections of the embankment at a near view. This is from station 2 to station 4, and is at a point where the embankment is the highest. On the outside of the walls at station 0, and extending past station 7 to the edge of the woods, is a deep and wide moat, which follows the base of the embankment and serves as a protection. At station 7, this moat becomes a ravine washed out by natural forces.

From the two mounds just east of the fort walls, there is a shallow ditch leading toward the south-west, where it deepens into a natural hollow. Our attention was first

called to this ditch by George Ridge, but Caleb Atwater prints an account of it in 1820. There were a few excavations made at various points in this ditch, and some things of interest found.

The first hole opened was not more than 100 feet south of the mound. The original surface of the ground was here found at a depth of two and a half feet. There were some pottery fragments and animal bones and burnt stone in the ditch, but the quantity taken out was rather small.

Three hundred feet further south another place was opened, and here the original surface of the ground was found to be over four feet below the present surface. The ditch then at this point was five and a half feet in depth. The soil extending upward from the bottom was very black and mucky, just such as would result from decayed vegetable matter, or water standing long in one place.

There were several large fragments of pottery and many animal bones in this ditch; the quantity taken out would exceed one peck in bulk. This ditch had been cultivated over for many years, and the soil, though black, was not so heavy or mucky as that found near the fort wall in the moats.

We think the wigwams or lodges once occupied the land along this ditch, and that refuse was thrown into it just as our housewives would throw rubbish from the kitchens into a lake, river, or pond, if the house was built on the bank of a body of water.

Above, we alluded to the moat which follows the exterior of the fort wall. It might be well at this point to express our opinion of the design of this moat.

Its purpose is, first, for protection; second, to obtain material for the construction of the fortification. Nearly all the earth for the formation of the embankments was taken from the interior of the inclosure. The ground inclosed is somewhat lower than that outside; the clay layer is very thin, as if it had nearly all been dug up. In some places the loam or surface soil rests upon the limestone, there being but a few inches of clay remaining.

Having exhausted nearly all the soil inside, the moat was dug to furnish sufficient to complete the wall and also to serve as additional protection.

The taking of earth from the interior would leave a very uneven surface; the occupants would want the space inclosed to be as level as possible.

At page 21 is Plate V, which gives a fac-simile of Sheppard's map of Fort Ancient. Mr. Sheppard appears to have copied his map from that of Squier and Davis, although he somewhat reduced the size.

The map has a number of errors in it, which could have been easily remedied had Mr. Sheppard visited Fort Ancient, and devoted sufficient time to the study of the topography of the earthwork.

The ravines shown on his map are good sized creeks, and are represented as crossing the railroad and emptying into the river. Only two of them cross the track, and, as it will be shown farther on, there is no water in any of these ravines during nine months of the year. The trend of the gullies is inaccurate. The length of the parallel walls is given as 1350 feet, whereas they are really 2760; an unpardonable error.

The road is drawn as bending toward the south; but, in point of fact, the pike, or at least the road, which is generally known as leading to the fortification, bends abruptly to the north. It is barely possible that he had some lane or cross-road in mind.

The isthmus is hardly accurate; the crescent gateway is not as he represents it.

The cross-sections of the fortification, as given by Mr. Sheppard, are more nearly exact than any others heretofore published, except Squier and Davis.

Plate VI, at page 23, shows a number of cross-sections at various points in the embankment. These were obtained by our survey at points where the wall shows the greatest contrast with the depth of the moat. Several of these cross-sections were secured at spurs or prominent points where the wall extends out some distance and turns back upon itself, thus forming a sort of

peninsula; the section across such places exhibits two embankments and two moats.

Just opposite each opening in the wall, or, as we prefer to call such places, gateways and entrances, the moat has the appearance of having been filled up. Upon close inspection, however, we find that the moat was not made continuous; it stopped short at the entrance. The earth was dug out on each side of the gateway, thus leaving a narrow road on a level with the surrounding plain. This roadway may have been used as a means of egress and ingress, and would be more convenient than had the moat been carried through without a break. At station 3 in the map, one sees a platform or fan-shaped mound thrown directly in the gateway. It extends out toward the east, and forms quite a wide roadway across the moat. From its general appearance and its connection with the gateway, we conclude that it was the principal entrance to the inclosure.

The embankment at station 1 is 22 feet in height, measured from the level outside. The moat on the exterior is two feet deep. It was once five feet deeper than at present, which would give the wall an altitude of 29 feet. As the embankment was once much steeper than now, the barrier would be impassable. The moat may have been filled with water, and if such was the case, the fortification would be impregnable to an army equipped as were the Indian warriors.

In excavating in the moats, traces of wood were encountered. In some places, the fragments were readily distinguished, but they were too badly decayed to admit of identification as to species. These fragments may have once been logs that were placed in the openings and used as a bastion. The traces, however, are too slight to determine any thing with certainty as to their purpose.

The reader, having compared the maps of Fort Ancient and the cross-sections as shown at page 23, Plate VI, is ready for the detailed description of the structure.

The surveying began just south of the point where the Lebanon and Chillicothe turnpike passes out of the

New Fort. The instrument was placed upon the embankment just south of the road, and station 0 was established there. The last station is on the north of the road, just opposite station 0, and is station 407, as has been previously stated.

The wall rises slightly from station 0 to station 1, so that the latter is the highest point upon the entire fortification. Standing here, one can see that the earth which composes these great embankments was taken, for the most part, from the interior of the inclosure. The ground inclosed is somewhat lower than that outside, and there is little clay; the top soil or loam seems to rest directly upon the limestone. We say "for the most part," because a great deal of the earth was taken from the exterior moats.

The space between the walls at this station is on the same general level as the outside field, but a platform or graded way has been thrown up in the gateway, which leads down in the interior. This has been so cultivated that its original shape can not now be determined. The next two stations that are gateways, we notice, as we go south along the wall, have no platform thrown up in them, but are cut down to the general level of the surrounding plain. The length of these three walls is 85, 110, and 159 feet respectively, and they are about the longest stretches of embankment that we have. There are three large poplar trees, each over 100 years old, and one unusually large beech tree, that must be at least one hundred and fifty years old, growing upon the walls.

These trees have no limbs growing from the trunks for the distance of fully 50 feet from the ground. As they are upon quite an elevation, they look very grand and imposing, standing like sentinels upon the walls. One is impressed with their beauty when viewing the fort from a distance, as they are seen towering far above the other forest trees.

At station 10, the wall passes into a heavy woods, which it follows, sometimes being entirely surrounded by forest trees, again bordering on a cleared field, for the whole extent.

Plate VII, at page 33, is one of the finest views that the photographer could take of the fortification as a whole. The camera was placed at station 12, and looks from the edge of the woods out from the great embankment as far as station 0. The embankment makes a sharp turn here, and we could get a very good photograph of its height. This photograph, when compared with Plates I and IV, will show the massive structure of Fort Ancient. In speaking of these gateways, the reader must not infer that every opening is a gateway. We use the term gateway because we have not a better one. It is probable that wood-work was built around the outside portion of the openings, and they were used for additional defense, somewhat like bastions in a modern fort. Between stations 11 and 22, we notice a very interesting thing: a depression follows the wall to station 16, where the wall was built directly across it; the ditch, being changed by this means, follows uninterruptedly around to station 22, where it joins a ravine which breaks through the wall at this point. Since the wall was built, the ditch between stations 16 and 22 has washed out to a depth of 16 to 18 feet. Just beyond this point, and at station 19, a spur of land runs out into the hollow that may have been used as a bastion. Many of these spurs may be noticed at frequent intervals of the fort, and they are always natural, and have not been artificially shaped. In many places on the outside of the wall, the bank has washed considerably, but the wall itself, being of tough clay, which does not easily erode, is still very plain. On the opposite side of the ravine, at this station, 22, the wall does not extend down the slope, the end of the wall being at the top of the bank. Some ravines were probably very small when the fortification was built, and some of them were large and deep. The wall was carried across the smaller ones, but stopped on the edge of the bank of the larger ones. Many of these have since washed out, and the washes in some of them are very old. A very good idea of the age of this fortification can be obtained by studying these washes.

From this point to station 36 there is nothing of special interest, and the reader can look on the map for the bastions, spurs, etc., and see them for himself. At station 36 the wall was once built solidly across a deep ravine, but it has since washed out. The builders appear to have made no provision for drainage at such points. The streams that would descend through these hollows would necessarily wear away the embankment, and in process of time destroy it, no matter how heavy and strong it might be made.

The moat at station 42 is still on the inside of the wall. At station 44 a narrow level space goes from the foot of the wall on the interior with a moat or ditch on each side. There is no depression in the wall at this point. Some writers consider these elevations between moats as roads built up for ingress or egress. This may have been their purpose, but they are nothing more or less than a level on each side of which earth was taken for the wall, and the natural height of the ground thus left. Opposite stations 33 and 34, over in the woods to the south, and across a deep hollow, are three small mounds. These were dug out, but little was found. They will be described later in Chapter III. From station 45 to 47 there is a deep hollow. The wall seems to have been built at one time clear across the hollow, without a break, but it now extends only part way down the slope on each side. At the stations just named there is considerable stone showing in the wall. It was probably put in to keep the wall from washing. But it also may have been thrown in loosely with the earth. Plate VIII, at page 36, shows this deep hollow. The camera was placed in the bottom, and one of our men stationed upon the opposite side. We had a great deal of brush to cut, as will be seen in the illustration. The depth of the hollow is 95 feet, the distance up the slope to where the man stands, 260 feet. This is a fair average of the ravines we were compelled to survey.

At station 49 and at station 55 are bastions overlooking spurs.

At station 57 another of those bad washes occurs, where the wall has been built solidly across the head of a ravine, but it was cut through for drainage by a farmer, and "the result is as usual." The entire embankment has washed out within the last few years.

At station 63 begins the narrow neck of land which is known as the Isthmus, and it is on this Isthmus that the famous Crescent Gateway and the Great Gateway are located.

At stations 76 and 77 there was formerly a curve in the wall, but a ravine has washed out and has taken almost all of the curve out, and where once stood a beautiful and graceful stretch of embankment, now remains an ugly and unsightly depression. At the stations just mentioned there is a glacial deposit, consisting of gravel. When built, the wall was probably near or at the head of this ravine, but this hollow has washed back since that time to its present position, nearly 40 feet further back than the west extremity of the wall.

At station 80 the wall seems to have stopped at the edge of a large ravine near the head. Just opposite this point, at the foot of the wall on the opposite side, it makes a sharp turn toward the interior of the fort. This would leave a deep depression between the two walls. This depression seems afterward to have been partially filled, making a path-way or passage-way from one wall to the other. Within this passage-way is now a moat filled nearly to a level of the passage-way. The arrangement of these walls seems to have been very much like that at stations 76 and 77. At station 80, half the earth being of clay, the erosion was not so pronounced as in the gravel of station 76, hence this place is still intact.

At station 85 there is a large bastion, which overlooks the spur. This spur is very long and level, and 150 feet to the east of this station is a large stone grave, which contained the remains of skeletons. Many of the spurs on the east side of Isthmus have on them stone graves, nearly all of which were opened by our party.

From station 88 the wall was built solid across a small

ravine, but has since been broken down by erosion. From this station to the end of the New Fort, the embankment is built on the hill-side, and in several places its top is lower than the summit of the hill. The distance across the Isthmus to the wall upon the west side is very slight, being not over 100 yards. The ravines on each side very nearly divide the hill into halves, and about 100 feet north of the Great Gateway they come so close together that the distance between them is barely 60 feet.

At station 89 and at station 306, on the opposite side, begin the circular or crescent-shaped embankments, which run out from the east and west walls. This spur we have named Crescent Gateway, on account of the beauty of the curves at this point, and in order to distinguish this gateway from the Great Gateway, or the one dividing the Old and New Forts.

The space inclosed between Great Gateway and Crescent Gateway I think was designed as a sort of middle fort. The space is well inclosed, and it is one of the strongest portions of the entire fortification.

At station 102 the Great Gateway begins. This will be fully described later on, when each interesting portion of the structure is taken up and enlarged upon in detail.

At station 105 there is a moat on the inside with no platform or approach to it from the outside. It leads down from the two walls of the Old Fort to the head of a large ravine. If a gateway, it would be difficult of approach from the inside; if a bastion, it would require a great amount of work to make it defend any thing, as it is 100 feet back from the head of the ravine. In coming out, by turning to the left, at the foot of the first mound, one could easily reach the Isthmus outside, and it is possible the opening was left for this purpose.

Station 109 is similar to 105, and is an opening in the wall leading directly into a ravine with no approach from the inside. Like station 105, its purpose is conjectural.

At station 110 begins a terrace, outside of the wall, which gradually widens in extent, until it passes station 112.

This terrace is covered with stone graves, the contents and construction of which will be described under Chapter III. This terrace has been omitted from all previous maps of Fort Ancient.

The only reason we can assign for this omission, is this :

The terrace is located in the wildest portion of Fort Ancient. The fort wall above is cleared on top, and there is a nice level path running around. Former surveyors probably never left this embankment. They could look down below them into a mass of wild grape-vines, underbrush, logs, rocks, etc.; they did not care to investigate in such a place, it was much nicer and easier walking on the embankment above, so they left these most interesting parts of Fort Ancient for years undisturbed. It was not until our force, with cutting and digging tools, and men not afraid of hard work, entered the hollows and plunged into the gorges that these terraces and graves were examined. There is an interior ditch from station 110 to station 123. At station 113, the terrace begins again outside the wall, and extends, sometimes, only a few feet in width, but does not disappear until we reach station 122. There are graves upon this terrace, between stations 113 and 116. Opposite station 115, there is the largest single heap of stones to be found on Fort Ancient. There are, probably, not far from 100 tons of rock in this heap.

Station 116 is a gateway with an interior approach which leads down to the terrace. The outside of the wall at this point is very high and very steep. Between stations 119 and 120, the wall of the fort has been built solid across the head of a ravine, but has washed out. From station 110 to station 123, the wall is built lower than the top of the hill, and this is what forms the interior ditch. The earth for the wall is excavated between stations 110 and 123. From this point on to station 187, is a succession of washes, spurs, and bastions, which are quite similar in character, and which do not need further explanation, as they can readily be seen on the map.

Station 187 is on a very high portion of the wall, and

is the south-west corner of Fort Ancient. It is generally called a mound, and is built directly across a spur. From station 190, which is at the foot of this high embankment, often called a mound, the wall is built down the slope to the bottom of a ravine, and up the slope on the opposite side; traversing thus the entire ravine. The wall has suffered to some extent from rains and floods, but is still distinctly traceable. The wall at this point makes an abrupt turn to the north-east, which trend it keeps quite accurately for some distance. At station 194, there is a gateway which has a level approach from the interior of the fort, and there is a moat or ditch on either side of this level approach. This gateway leads out on the river side on a spur, which contains a large stone grave. There are also many stones in the gateway.

At station 201, there is a bastion overlooking a deep ravine, and at the corner of the fort there was once a considerable pond, but some one has cut through station 201 to drain this pond, therefore, the wall has washed badly.

At station 209, there is about the largest ravine in the fort. The wall is built down the slope of this deep ravine, solid across the bottom, and up on the opposite side. There is a gap in it through which the water passes during rainy seasons. It would require a strong wall, with some means of outlet to prevent its washing down in heavy rains. Considering its position, it is one of the best preserved walls in the entire fort. On the spur opposite station 224 (on the river, or west side), is a very large stone grave. The fort wall has been running for some distance along the edge of a hill overlooking the Miami, and will continue to do so until we pass station 250. There are two large terraces between the top and bottom of the hill, the upper one of which has many stone graves upon it. These terraces will be described later on. Just beyond this deep gulley, is a place where the wall is built across the head of a ravine. There is such a depression above, that if this wall was built to the height of ten feet, it would make a pond of nearly or quite half an acre.

This looks so much like a reservoir, that I am tempted to consider it such.

Station 231 may be either a gateway or a bastion, and overlooks a regular slope on the outside, but there is no spur leading direct to the river. At station 248, there is a narrow spur which runs out nearly on a level with the interior fort. The wall here, as will be seen in the map of the fort, runs out to a point, and overlooks the valley below. The finest photograph of scenery connected with Fort Ancient in the collection, was taken from this point. The view from there is by far more picturesque than any other, not only here, but in any section of western Ohio. One looks from this to the point far above, where the terminus of the fort swings in toward the river. The whole landscape is wondrously beautiful, and is, perhaps, unsurpassed anywhere in *non-mountainous* regions. Plate XXXI, page 108, gives a fac-simile of it.

Stations 245 to 250, comprise the point of the spur, and in the interior there is quite a deep depression all the way round; the earth has been taken for the embankment from the inside, and its removal has left a deep ditch. There is a roadway leading down to the mouth of a large ravine, near a spring, and near the river. These gentle slopes were doubtless used by the aborigines as roadways to the valley below. At station 250, there is a depression in the wall, where it has been built across a ravine. A portion of the area within it has filled up level, but the embankment without is very high and steep. On the spur on which 248 stands, the wall is built below the summit of the hill as far as station 252, at which point it returns to the crest. At station 267, there is a moat on the interior. This moat is unusually large and deep, and holds water the entire year. It was once undoubtedly much deeper: the mud in it is quite soft, and somewhat of the nature of a quagmire, as a number of cattle have mired and perished in it before they could be extricated.

At station 267, there is a gateway, and at stations 268 and 269, there is a graded way leading down the hill to the

plain below. In the deep ravine beneath this point, are several excellent springs of water, and it is possible that a pathway led hence down to the springs, and that the hill has been artificially worked to secure an easy approach. Station 286 is the end of the embankment or mound on the west side of the great gateway. Station 287 is the middle of the entrance to the Old Fort, between the two so-called "mounds."

There is a platform mound inside this entrance, which leads down to the level within. Underneath the embankments, and in this platform, there is a large amount of rock. Much of this rock also lies about the surface of the Great Gateway.

The portion of this platform extending toward the south was found to contain many human bones.

This platform is about four feet above the general inside level. From its appearance, we think it was built before the Great Gateway was completed. It was not an addition; the whole part of the fortification was built at the same time.

From station 289 to 290 is a deep ravine, which has been washed out of the gravel deposit by both underground and surface drainage. This ravine extends well within the walls at present, but it is probable that, when the fort was built, the wall ran just to the head of it, as in similar cases at other points in the fort. The wall has been built up around such places, and it is probable, also, that the wall extended much further than station 290. The present end, as it stands, reaches to the edge of the ravine, and caves in more or less every year. Before the wall was built, most of the drainage at this point went down in the ravine, which heads at station 294. The wall being built across the head of this ravine, would cause the water to run along the inside foot of the wall, until it reached the present washout, which it would assist greatly in excavating.

At station 295, the wall is composed almost entirely of stone, which shows on the outer slope for fully 20 feet below the top.

Station 301 is a gateway, containing a large amount of stone, going out on an easy slope to the mouth of the deep ravine below.

At station 307, is a depression, where the wall crosses the ravine, which, however, is now filled up nearly level with the adjacent surface. In this immediate vicinity (station 306), begins the crescent wall, just within the fort wall.

At station 309, there is a gateway, on the exterior of which is found a large quantity of rock, while very little is there in the interior. This gateway leads along a gentle slope of drift gravel, and at the end of the slope is a round knoll, at a distance of about 600 feet from the wall. The knoll is about 25 feet higher than the ridge on which it stands, and from its top there is a regular and gentle descent to the river bottom. The descent is quite uniform, with no juttings or breaks in any of its parts. Viewed from the river side, the slopes that fall away from the knoll are so symmetrical as might almost induce the belief that they are artificial. All the spurs and lower hills outside the fort wall, between the ravine which empties opposite station 248 and the ravine which forms the northern boundary, including the entire hill up which the pike winds its way, are of glacial origin.

The hill from station 231 to station 248 rises abruptly from the river, as does the hill on the opposite or western side of the stream, and forms a narrow defile through which the river has cut its way. During the glacial period, this narrow opening was probably dammed and closed by ice (as has been already stated), and thus in all likelihood a lake extended over the entire bottom where the village of Fort Ancient now stands. Great cakes of ice, carrying gravel and drift, and floating in this lake, would be sufficient to form the deposits that are here found. Where gravel-pits have been opened, the arrangement of the strata shows that these deposits were formed in water.

Between stations 322 and 329, the wall is built slightly below the top of the hill. At station 324, is a bastion or

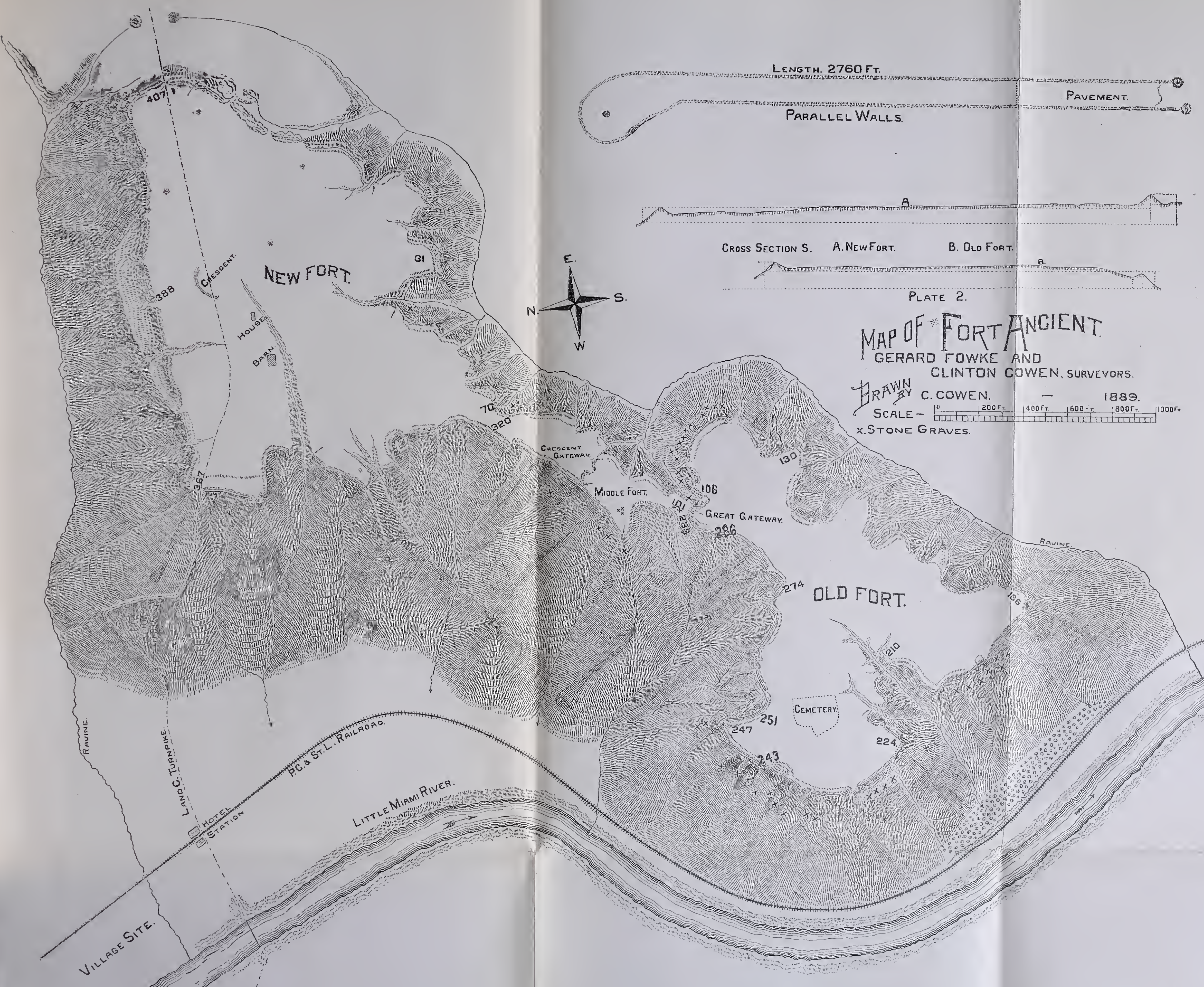
gateway, leading out on a long spur toward the spring. At station 328, there is a bastion, overlooking a deep ravine.

From station 320, the wall is built down the slope of a deep ravine almost to the bottom. On the opposite side, the wall extends up the slope from the bottom to the top. It is probable that the wall was built solidly across this ravine, and has been washed out. On the west side, the wall seems to have deflected the water and made it strike against the wall on the east side, as the slope of the ravine on each side is as steep as earth will lie. Erosion at the bottom of the wall would cause the part above to drop or slide down to the lowest part, and be washed away.

There is a small mound 100 feet due north from station 334. Station 337 is a bastion or gateway, with level approach on the interior, with a moat on each side opening out on slope leading down to the side of the large ravine.

At station 339, the wall is built across the head of the ravine, and is washed out. At station 342, there is a shallow depression in the top of the wall, where the embankment makes a sharp angle. In the interior, is a level approach, with ravine on one side and a deep moat on the other. This gateway leads out on an easy slope down a narrow ridge of drift gravel, descending gradually to the river bottom. Station 345 is a bastion. Station 349 is a gateway, with interior level approach, a moat on each side, leading down along the edge of a deep ravine, giving an easy descent to the bottom below. From station 352 to 353, across the big ravine back of Mr. Howard's house, there is a break in the wall. It is not probable that the wall was ever built across this ravine. Some other mode of protection or defense was necessary. The sides of the ravine are so steep, and the force of the water so strong, that the earth could not have been made to stand.

Between stations 357 and 358 the wall was solid, with a sharp turn, almost a right angle, across the head of the ravine. Here there was a moat or small pond inside the wall, and the owner of the land, or some one desiring to



LENGTH 2760 FT.

PARALLEL WALLS.

PAVEMENT.

CROSS SECTION S. A. NEW FORT. B. OLD FORT.

PLATE 2.

MAP OF FORT ANCIENT

GERARD FOWKE AND
CLINTON COWEN, SURVEYORS.

DRAWN BY C. COWEN.

SCALE - 0 200 FT. 400 FT. 600 FT. 800 FT. 1000 FT.

X. STONE GRAVES.



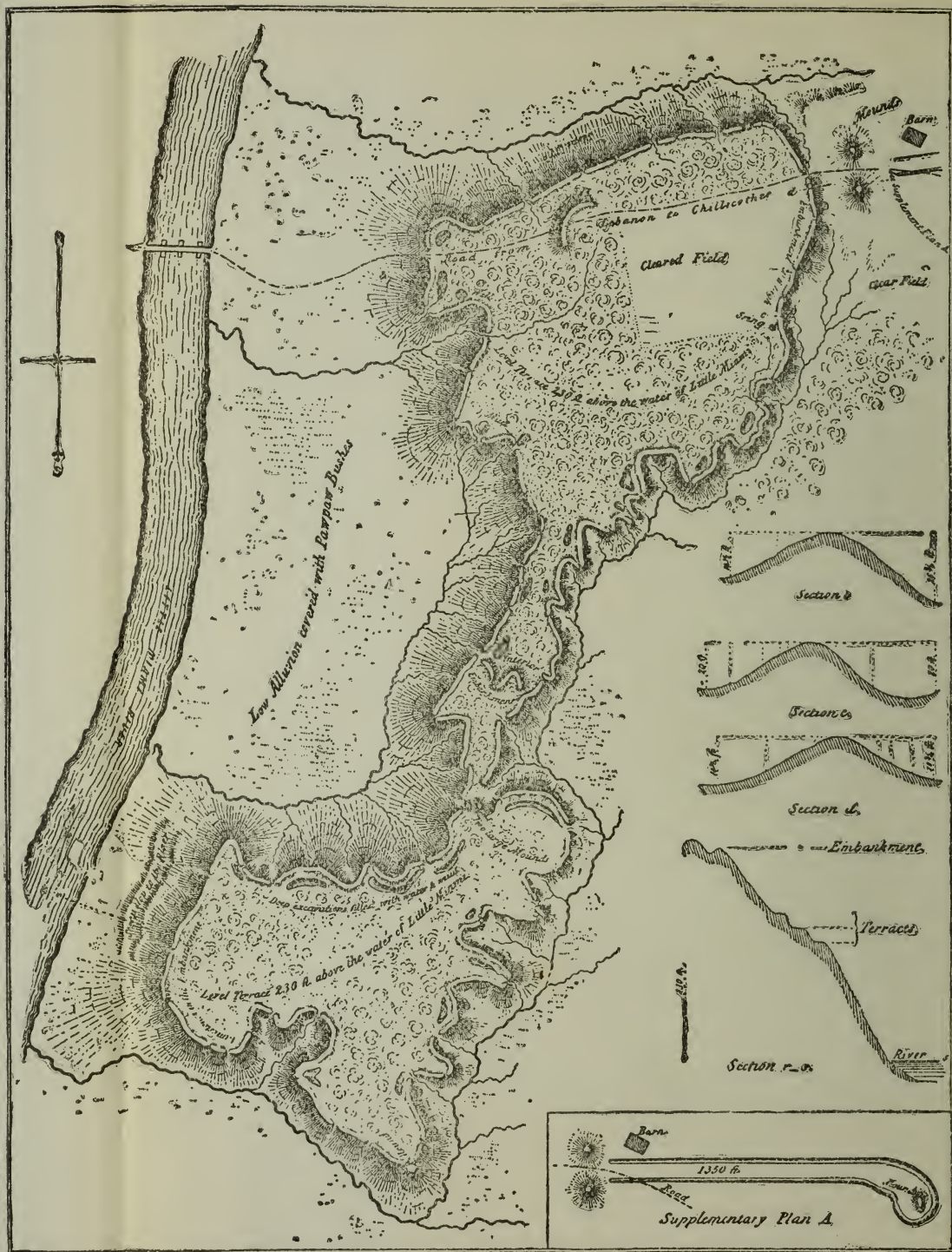


PLATE V.—Sheppard's Map of Fort Ancient.

Opp. p. 21.

Map used by Henry A. Sheppard, in his work, "Antiquities of Ohio." We are indebted for the use of this cut to John C. Yorston & Co., Cincinnati, Ohio.

drain it, cut a small trench through the wall, which was built on a gravel deposit. The water soon began to undermine and cut out a wide ditch, and in spite of efforts to prevent it, the wall on each side caves in more or less every rain. The gap is now 57 feet wide, and will continue to increase unless some effective measures are soon taken to stop it.

At station 360 is a gateway leading down hill on a narrow spur toward the railroad station. Between stations 363 and 364 the pike passes. This was apparently one of the main gateways of the fort. On both sides of the pike within the wall, the earth has been excavated to a large extent to be used in the walls. The pike, however, follows the extent of a kind of platform, having the original level for a width of 70 feet, from which part no earth was removed. It has the appearance, viewed from the entrance, of an artificial elevation, but is simply the original surface left to make an easy passage. The first wall on the north side of the pike, although very heavy, forms a crescent, almost a semi-circle. A large amount of earth has been excavated just within to be used in the construction of the embankment. Formerly this contained water to a depth of several feet during the entire year, but it is now almost entirely filled up with decayed vegetation. Station 367 is a bastion overlooking a narrow spur that runs out between the road and a deep ravine on the north. Its gateway could not be reached from the interior directly on account of the pond above mentioned. It would be necessary to approach it from one side or the other on the wall. There is a depression where the wall was built solidly across a deep ravine, but has washed out. At station 374 there is a gateway leading down to a deep ravine on the north. Beginning at station 375, there is a terrace on the outside of the wall which extends as far as station 387. From station 370 to station 388, the wall is built below the top of the hill, on the slope. Between stations 378 and 379 the wall must have been heavy across the ravine, but it is now washed out. A natural ravine has

formed by water running along the inside of the wall, which, in process of time, has cut its way through the embankment.

This terrace is about 20 feet in width, and extends for several hundred feet along the hill side. It has been entirely omitted by writers upon Fort Ancient. There are a few stones here and there lying upon its surface, but no graves.

Station 382 is a gateway which leads out upon the terrace. At station 386 the wall was once solid, but was pierced for the passing through of a road, so it is reported; but, from the indications, we think there was a gateway there, and very little, if any, excavating was done to allow a wagon road to pass through. There are large flat stones in the bottom of the wall at this point, and they crop out at the edges and can be plainly seen. At station 390 there is a bastion opening out on a ravine. On the interior there is a level, but the gateway is slightly higher.

At station 394 the wall was once built across a small hollow, but for some reason unknown to us was left quite low, so that it has the appearance of having been washed out. This depression is about twenty-five feet in width.

This has an easy approach from the interior, and on the outside leads down a slope to the bottom of the ravine, at a point where a branch comes in from a good spring in the field north of the fortification. There is a regular passage-way through station 397 to the mouth of this branch. The spring has unusually cold, clear water, and it seems as if an artificial channel led from it to the ravine at the place mentioned.

Station 402, at the north-east corner of the fortification, was probably a bastion, as it opens down into a ravine; but it may have been a gateway leading out to the field north-east. Station 405 is a gateway opening out toward the large mound on the east side of the pike. This gateway has a great deal of stone in it.

Between stations 407 and 0 the pike passes.

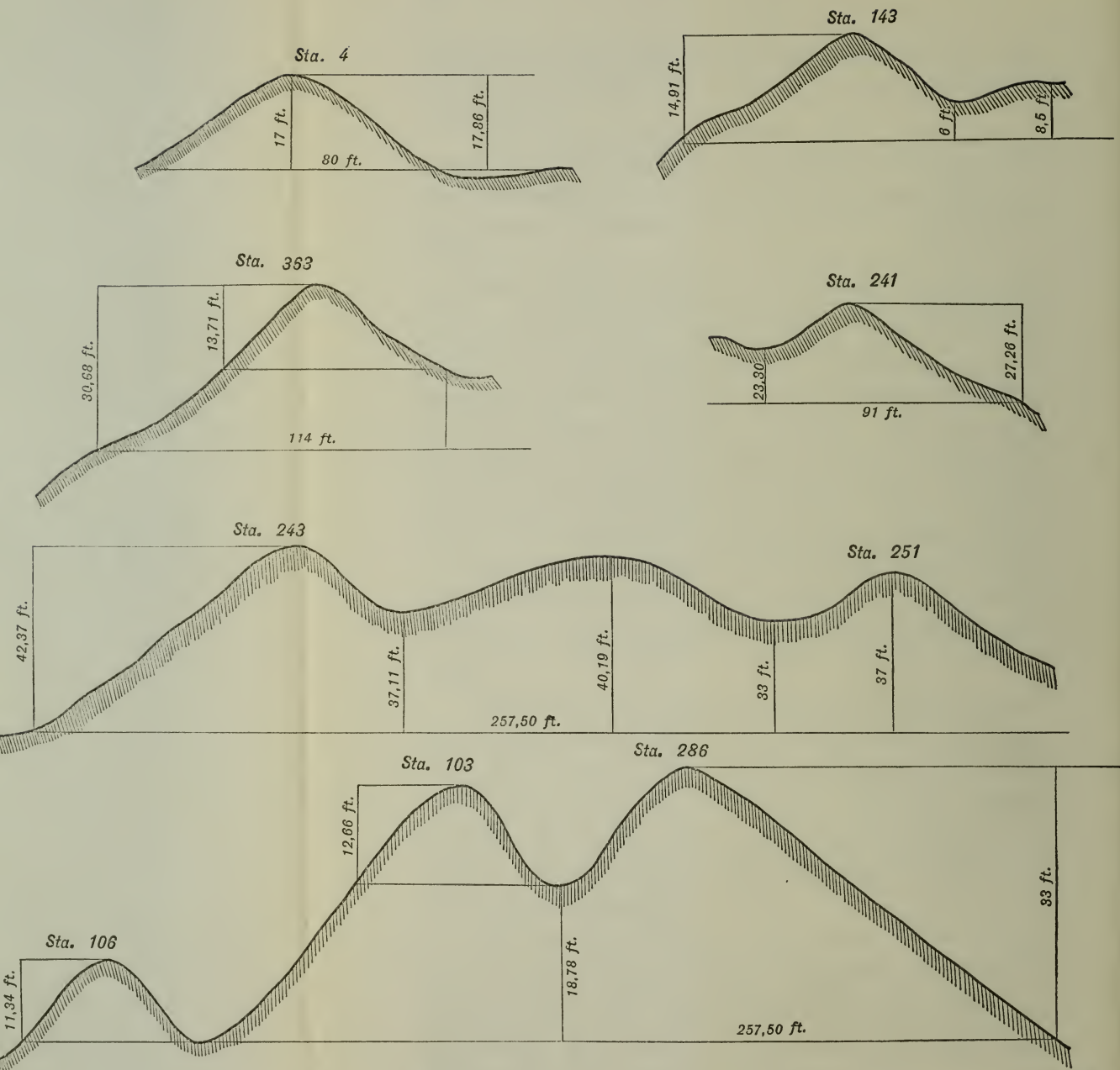


PLATE VI.—Cross Sections of Fort Ancient, taken at prominent points in the Embankments.

The summary of the survey may be stated in the following figures :

Total length of the walls of Fort	
Ancient	18,712.2 feet.*
Length of the parallel walls.....	2,760 “
Length of the crescent in New Fort.	269 “
Distance in a straight line from stations 187 to 389 (the most dis- tant points north and south).....	4,993 “
Total length of terraces within one mile of station 0.....	5 $\frac{3}{4}$ miles.
Grand total of artificial work in length.....	101 $\frac{7}{52}$ “

The parallel walls are 2,760 feet *each*; readers must not fall into the error of considering the above the length of both taken as one continuous embankment.

The object of this brief mention of the stations was to make the reader as familiar as possible with the general outline of this structure. We will now take up the more interesting portions of the earthwork and discuss them at length. This will probably be more interesting reading, as there will be few numbers and the more prominent features will be under review.

* This length of the walls is obtained by measuring and surveying the center of the embankment on top. There is no allowance made for spurs, bastions or elevations. The Crescent Gateway is not included. Were these added we would probably have a total length of 21,400 feet.

CHAPTER II.

THE POSITION OF THE FORTIFICATION. POINTS CONCERNING
THE GATEWAY; THE ISTHMUS, ETC.

By examination of the map on page 20, the reader will notice in the center of Fort Ancient a long, narrow isthmus, which is formed by two deep ravines, one on each side of the hill. In several places this isthmus, as stated previously, is 100 yards in width. In other places the walls of the fortification come to within 100 feet of each other. This isthmus begins at station 309 on the north, and extends to the Great Gateway, or station 288 on the south. In order to understand this isthmus and the central part of the work, which is by far the most interesting portion of the entire fortification, we will call the attention of the reader to Plates IX, X, XI, and XII. In Plate IX, at page 39, it will be seen that the road which extends through the entire length of the fortification passes between two large high mounds. They stand about 300 yards south of the point where the camera was placed for the taking of this view. These two mounds are about 20 feet in altitude, and at the base are ten feet apart, leaving just space enough for a wagon to pass between them. At their bases and between them is a raised platform four feet in height. This is more extensive on the side next to the Old Fort than on that lying toward the New, and when examined it was found to contain many human bones, in small fragments and much decayed. When within 103 feet on the east and 143 feet on the west of the Great Gateway, the embankment coming from the north on the edge of the isthmus on each side abruptly terminates. For a distance of 103 feet on one side and 143 feet on the other there is no embankment, the ravines having such a steep angle on each side that further protection was unnecessary.





F. Biddle, Photo.

PLATE III.—Limestones in the Embankment where the L. and C. Pike passes through New Fort.

Plate X, at page 42, will show the surveying corps as they stood on the mound and in the gateway. This plate also furnishes a close view of the Great Gateway, and by the figure seen standing on the summit of the mound to the left, or east, one will get a very good idea as to its height when compared with that of a man of six feet.

It may not be improper to observe at this point that in all the pictures with which this book is embellished, trees and foliage are very conspicuous. It was impossible to secure photographs otherwise; and this constituted the main difficulty which we encountered. Nearly the entire area of Fort Ancient lies in a forest so dense that no little clearing had to be done before any real progress, either in photographing, surveying, or excavating, could be made.

All about the Great Gateway are masses of stone which were employed both as coverings for graves and as a protection to the embankment. These are similar to the heaps shown in Plate XIII, page 53. They are most numerous on the east side in a depression between stations 101 and 103. At this point the embankment is the steepest in the entire earthwork. At the base and protruding from the sides are many large water-worn limestones. These must, at one time, have been piled up in the form of a rude wall to strengthen the base of the embankment. The average size of these stones is 18 x 20 inches, weighing probably about 40 pounds each. Some are considerably heavier and larger. Human bones in large numbers have been found a few inches below the surface soil in and about the Great Gateway.

Plate XII, at page 50, shows the highest part of the Great Gateway, the camera being placed at the bottom and pointed up toward the top. The figure on the summit gives an idea of the height of the embankment. It will be noticed in this photograph that the leaves and twigs of trees are so thick as to hide the gravel, pebbles, and limestone which protrude from the walls.

Plate XI, at page 46, exhibits the east mound-shaped wall of this Great Gateway. The mound is much higher

than the one on the right, or west. The road passes between them, and is four feet higher than the surrounding level on account of the platform mound which lies in the opening.

From the Great Gateway the two walls which constitute the Old Fort greatly diverge. One runs directly east, the other south-west. The wall running east soon swings around to the south; the other wall runs in a very irregular manner, being more tortuous than any other portion of the entire structure. About twenty-five stations beyond the Great Gateway, it assumes a southerly direction for quite a distance.

Immediately to the left of the Great Gateway there is a deep depression between the walls, which is filled with rock. These rocks are not the coverings of graves. They are stones that have been used to form a sort of wall at the foot of the embankments. By thrusting an iron rod into the bank at almost any point, one can feel stones still standing as they were originally placed. The earth from above has washed down and covered them up so that they now appear as if they had been originally covered with earth by the builders. Such is not the case. The stones were on the outside of the wall; the earth has since run down from above and covered them. Many of the stones have fallen down and formed a heap about the base of the high steep mounds at this spot.

Plate XII, page 50, shows how steep and high the embankment is just above the spot where lies the stone wall described. The figure at the top is that of a six foot man. Compare his height with that of the embankment. At page 56, Plate XIV, there is a group of workers just beginning an excavation into a stone grave when the photographer approached. The stones thrown out are but a small percentage of those found above the bodies. (Drawings and photographs of graves and their contents will be given in the chapter on excavations.)

The wall constituting the Old Fort for the greater part is in the edge of a wood.

The interior is cleared, but there is left a fringe of timber extending all around the Old Fort. This timber on the walls is a source of great protection, and preserves the embankment as nothing else could. The variety of trees found on the wall is considerable. We find beech, walnut, oak, ash, elm, dogwood, poplar, and hickory. The beech is more numerous than any other variety. These trees have roots more exposed to the surface than any other. These roots form a perfect net-work in places over the wall, and together with the moss, which is so abundant in many localities, afford a very efficient protection.

In other places there is a considerable growth of saplings, sprouts, blackberry bushes, and grass. The places where the embankment has recently washed are those upon which cattle have stood and cut the earth with their hoofs, and thus started a small gully, or where some one has cut a drain through to allow water which has collected above to escape.

On the whole, the wall is much more irregular than in the New Fort.

It appears almost certain that a large village once flourished within the inclosure, as we find many more flint chips, bones, and pottery fragments here than we do in the New Fort. This will be fully described in the chapter on surface finds.

At page 64 (Plate XVI) will be found a likeness of one of the most beautiful gateways in the entire fortification. The embankment does not suddenly drop down, as in some of the openings, but the descent is very gradual. The gateway begins back fifty feet from the center of the opening. The view looks out into the plain. The growth is very heavy, and is mostly beech, with a few walnut trees. The height of embankment on each side of this gateway is about 12 feet.

At page 60 (Plate XV) we have a view of a fine gateway and embankment in the Isthmus on the east side. The embankment is not over five feet high; the gateway

is of a gradual slope order. There is a slight opening in the gap, as if a platform had once been thrown up.

At page 68 (Plate XVII) there is shown the outside slope of the fort wall, near station 280. The earth at this point has been dumped on the edge of the hill and allowed to fall down upon the outside. This has made the outside slope of the ravine very steep, perhaps 35 or 36 degrees. The height on the inside of the wall at this point is only nine feet. We trace earth artificially deposited at the base on the exterior 50 feet from the summit. There is considerable timber on the slope, as will be seen in the illustration, and the growth of grass and weeds is very heavy. There is a moat on the inside of the wall at this point. The earth for the construction of the embankment was taken mainly from this moat. We noticed on the west side overlooking the river a deep moat on the inside of the wall. This follows for a long distance, and is in a number of places filled with water.

Near the Great Gateway on the west side embankment we dug a deep hole in the moat, in order to determine what was its original depth. The moat is at present but two feet deep; our examination showed that when the aborigines completed it, it had a depth five feet greater than now, making a total depth of seven feet. The earth at the top, and for a distance of two feet downward, was very black. This was due entirely to the decay of vegetable matter, as was noticed in the moat at the east side of the structure near station 3. Four feet from the surface we found pottery fragments, chips, and flakes of flint and charcoal. No bones whatever were found. At the depth of five feet the original surface was struck. The height from bottom of ditch to top of wall was once 16 feet. But the wall itself must have washed down, and the earth found in the ditch may have been derived in part from the wall. We must place two or three feet on the height of the wall to get an approximate idea of its altitude. It was 12 feet then, and the ditch was seven feet deep. This gives us a height of 19 feet for the wall at this point, which we consider a safe estimate.



C. J. Strong, photo.

PLATE IV.—Station 1 to Station 7. The Embankment is 1,000 feet distant. About 1,050 feet of Wall is represented.

Opp. p. 29.

Plate XVIII, at page 72, gives a good idea of the end of the embankment at station 230. The gateway to the right has steep sides, and is quite deep. The lens in the camera was not large enough to take it all in, but sufficient is shown to impress the reader with the size of the wall at this point. The height here is 12 feet. The picture represents a west side embankment, and overlooks the river.

Let the reader now return to the Isthmus, on the west side. Look at Plate XIX, at page 76, and study the view of the fort wall where the Isthmus proper begins. The figure at the right in the illustration stands upon station 296, the highest point of the embankment. There is a quantity of stone in the embankment at this place, but the embankment itself is scarcely more than four feet in altitude. The figure in the distance is that of a boy of about five feet in height, and he stands upon an embankment eleven feet high. From the summit where the boy stands, a most beautiful view of the valley is obtained. One can see as far as Oregonia, or about three miles up the river. The embankment upon which the first figure stands runs north and south. At a short distance from there, it turns westward; then bends north again, on the edge of the ravine, which it follows for some distance. The open space in front of the embankment is filled with stones, the design and use of which it is by no means easy to explain. They are not the coverings for graves, as there is nothing beneath them. We dug down below them in a number of places, but found nothing whatever.

The curves in the wall in Plate XIX do not show so well as they might. There is a double curve here, one of the most symmetrical and graceful of the whole earth-work.

Plate XX, at page 80, shows another section of this wall overlooking the valley. The tree which fronts the observer, and which is seen in the center of the picture, is one of the finest on the entire line of fortifications. The embankment at this point has a height of about nine

feet, and runs due north and south. There is no wash in this part of the wall.

Plate XXI, at page 84, represents the narrowest portion of the Isthmus, and shows where the S-shaped embankments cross. The camera is placed near to them, in order to take in their heads, and beyond is seen the grove where picnic parties and visitors love so well to dine. It is by far the most enchanting portion of Fort Ancient.

In Plate XXII, page 88, one sees the road and the embankment just beyond. This part of the wall is covered with trees, and the light was so poor that it was impossible to take a good photograph. It is intended to show how low the fort walls are in some places. The height here is barely four feet, and the reader will readily perceive that it was unnecessary to make the embankment higher, when he learns the ravine on the other side, just west of this low wall, has a slope of 41 degrees. There are a great many washouts, and the embankments are partially destroyed throughout the whole extent of this section. In several parts, the farmers have opened drains, and so, washing but little at first, the breach has gradually extended on both sides, until 25 or 30 feet of it are missing.

Plate XXIII, page 92, exhibits one of the most extensive of these destructive washouts which the fortification has suffered. It has been observed, in connection with the remarks on the geology of Fort Ancient, that the reason of the slow waste of these earth-works appears to result from the nature of the soil of which they are largely composed, viz., tough, glacial clay. Still, here and there are sorrowful evidences that the forces of nature and the hand of man have left little else than a ruin of what once must have been the finest production of the aborigines in the Ohio valley. Plate XXIV affords some idea of this extensive break, which is 57 feet wide and about 45 or 46 feet deep. The figure sitting on the summit of a portion of the wall which still remains may serve to aid the reader in forming a somewhat clear notion of its height. The

materials of which the wall is composed are worthy of some attention. There is a variety of colors in the earth out of which it is built. In the center stones may be noticed, and at the top of the embankment they assume the shape of a rough layer. The stones that comprise this layer are too small to have formed a wall; the average will not exceed three pounds each.

In the opposite side of this washout, there seems to have been a heavier layer of rock. These weighed as much as ten pounds each. They did not extend into the embankment on the other side of the gully, and may be an extension of the stones seen in Plate III (where the Lebanon and Chillicothe pike cuts through the fortification; this latter place is but two hundred yards distant).

There is a travertine coating upon these stones which has been mistaken by some and called "Mound Builders' cement." The formation is entirely natural, and much of it may be found along any rocky hollow in limestone regions.

Moreover, the wall at this point seems to have been built at two different periods; at any rate, some time must have elapsed, after the completion of the lower layer, before the upper layer of stones and earth was placed upon it. Some vegetable matter has accumulated between the two layers. It seems quite evident that grass and small sprouts grew upon the lower stratum before the higher one was placed upon it. The line of division is a dark one, clearly marked, and is precisely such as would result from the decay of vegetable matter. It is half an inch in thickness.

In the earth below, the prevailing color is yellow, with streaks and patches of darker soil. This is probably due to the locality from which it was taken, some of it being loam gathered from the surface, while other portions came from a greater depth, and were, in consequence, yellow clay. Not a little blue clay appears. This the builders probably took from limestone beds and from the hollows. In many places, there are small quantities of colored earth, as much as would fill, perhaps, a

half-bushel measure. This fact, we believe, indicates the size of the loads which the builders carried; and the variety of color in the earth used arises from the difference of locality whence it was taken.

Plate XXIV, at page 96, shows the embankment to the right of the Lebanon and Chillicothe pike, as we go east. The embankment here is 17 to $17\frac{1}{2}$ feet in perpendicular height.





C. J. Strong, Photo.

Opp. p. 33.

PLATE VII.—View along the Summit of the Embankment, from Station 12,
in the edge of Woods, looking North.

CHAPTER III.

EXCAVATIONS IN AND ABOUT THE EARTHWORK.—STONE GRAVES,
STONE HEAPS, ETC., AND THEIR CONTENTS.

By referring to the map of Fort Ancient, on page 20, one will see a great many stone graves indicated, and five small mounds in the New Fort. There are seven small mounds on the outside, within a few hundred yards of the fortification, but our map is not large enough to show them, and, besides, they are unimportant. The stone graves and the cemetery were opened very carefully, and drawings and photographs taken of their contents. In the center of the Old Fort, as shown in Plate XXV, at page 98, is a large walnut stump. This is found on quite a perceptible rise of ground. For a distance of about 110 feet, all around the stump, are many graves, which are situated at an average depth of two and a half feet. These graves are formed of limestones, which are brought from the ravines adjacent, or the river valley below, and are placed on each side of the skeletons, at the head and at the feet, and over them. The skeletons found in the cemetery are of an average size, being about five feet six inches in height. Plate XXVI, at page 100, shows one of the bodies as it lay in the ground accompanied by several relics. It had a large circle of stones placed around it, and had the following relics buried with it: Near the left femur was a large spear-head of yellow flint; near the left shoulder were remains of pottery broken into small fragments; near the right femur was a large stone celt. The bones of this individual were quite well preserved, and we saved them almost entire. In this grave-yard we took out twenty skeletons in various stages of decomposition.

Some of these were as deep below the surface as three

and a half feet. There were some sandstones used as coverings, but the majority of stone used was limestone.

The stones are about 15 pounds weight on an average. Some are heavier, and others lighter. Between the stones and the body there is usually four inches of earth. It is almost impossible to save any thing except the skull in fragments, the femurs, the bones of the upper and lower extremities. The vertebræ and the ribs and the pelvis are usually so much decayed that there is little left of them. These graves present rather a uniformity in construction.

There is a prominent official East, who has for many years advanced a theory that a tribe of Indians, known as Cherokees, built all the mounds in Southern Ohio, and that all the stone graves and heaps were built by the Shawnee Indians. At this cemetery, we believe we have made a discovery which would assign a period to these graves which antedates the occupation of the region by the Shawnees at least 75 years. The walnut stump that we have referred to several times in this chapter is five feet eight inches in diameter. The tree was cut just 19 years ago this fall. When standing it was one of the most beautiful trees in the entire fort. Black walnut grows rather rapidly at first, and then quite slowly. The age of this tree, as given by a fair botanist, is not far from 255 years. The age of the tree will not be less than 250 years, nor more than 260. Counting 19 years since the tree was cut, we have a total of 274 years. The Shawnees left Ohio in 1790, or nearly 100 years ago. They had been here less than 80 years, and came (in round numbers) in the year 1710. This grave lies right under the walnut stump. The roots run *over it*, not under, showing that the tree grew after the grave was made. A considerable time may have elapsed before the tree sprouted, but, even counting the age of the tree alone, we find that it antedates the Shawnee invasion by 75 years.

Therefore, these graves are not those of the Shawnees.

In the field where we find these graves, there are a number of circles or depressions, some of which are quite plain and others very indistinct. These vary in diameter from 22 to 30 feet, and two of the best preserved of them have a depth in the center of three feet. Or to use a common illustration, they have a slope toward the center somewhat after the manner of an ordinary circus ring. The area inclosed in these circles is of a different color from the earth outside. The earth is generally slightly burned, has a reddish color, is intermixed with many pottery fragments, streaks of ashes, and fragmentary animal bones. An old farmer, Mr. Hughes, living near the fort, well remembers that fifty years ago these circles were very plain and could be easily traced. The spaces inclosed are nothing more or less than wigwam circles. The Indians that lived in Fort Ancient built large lodges similar to those erected by the Mandans. The lodges of the Mandans, as found on the upper Missouri river, are about this size.

Large heavy saplings were placed in the ground in a circle and bent together at the top. They were interlaced with grape-vines or pliable twigs and the exterior covered with a coat of clay nearly a foot thick. This would harden and form a dome-shaped structure twenty-four feet in diameter, and fifteen or twenty feet high. When a lodge was abandoned or torn down, the greater part of this clay would fall, and thus leave quite a little embankment of circular appearance. In a number of places in Southern Ohio there are wigwam circles like these which are still traceable. From their large size and uniformity of construction I am led to believe they are Mandan;—that, as Catlin says, “The Mandans once inhabited the Ohio Valley.”

It may be in place here to describe the mounds situated inside the new fort and give an account of the exploration of each one. Four of the mounds in the inclosure appear to have formed a sort of rude square nearly in line with the cardinal points. On the east there is a small mound about 100 yards from station 1 which is covered with burnt stone. About 200 yards south is another in

the edge of the woods. There are two more equally distant to the north and west, thus making a square which, while not altogether exact, closely approaches it.

Near station 35, across a deep hollow over in a dense woods, are three mounds. They are 300 to 400 yards distant from the nearest approach of the wall. They vary in diameter from 20 to 30 feet, but they are all nearly the same altitude. The average height is three feet. These mounds were dug out very carefully and a few interesting things found. The following account of them is taken directly from the Field Book:

(The numbers used in reference to graves and mounds require a brief explanation. Last year, when doing field work, I began to number consecutively all mounds opened, in order that my notes might not be confused. These numbers were continued this year.)

The first and largest of the three mounds is number 50. It is near a saw-mill, and about one quarter of a mile due south from Mr. George Ridge's house.

The mound is four feet high, about 40 feet in diameter, and quite regular in outline. Work was begun Thursday morning, July 18th.

For a considerable distance in this structure nothing whatever was found, and, indeed, we were well into the center of the mound when we came upon a large mass of burnt clay, and considerable charcoal and ashes. About six inches above the base line was a fine layer of burnt bone; this was two or three inches thick, and extended over half the mound.

Below this, near the center, were two "pockets" covered by burnt stone, and extending two or three feet deep. There were pottery fragments in each of them. Near one of these "pockets" were three sheets of yellow mica, with edges neatly trimmed, and presenting a disk-shaped appearance; they were about six inches in diameter. There was a fragmentary skeleton in the mound, which had one arrow-head and some pottery fragments buried with it. It had on the right hand quite a mass of red ochre, which was probably used for war-paint. Near the south-



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F. Biddle, Photo.

Opp. p. 36.

PLATE VIII.—View from one of the Deep Hollows, looking up. The figure at the top is that of a six-foot man, standing.

west part of the mound a broken celt, and a black stone of rather peculiar form were removed. This latter was a very fine relic and can be restored. The length was about six inches, and the width about one and one-half inches. The pottery found in this mound is thin and well made, but not ornamented. There were no stones in the mound except a few above the bones, and these were not laid regularly.

Mound No. 51 is in the same woods as No. 50, and lies nearly south from No. 50, 200 yards, or about 600 yards from the north point of the fort wall near station 32 or 33. It is two and one-half feet high, and 40 feet across. This mound was dug entirely through, and traces of decayed skeletons were seen, but none of the bones were sufficiently well preserved to take them out entire. There were about 30 scales and chips of flint found with some of these bones.

No 52 is in the same woods, but is nearer the fort wall; it is on the edge of a hollow, probably about 200 yards across from the fort, opposite station 32. It is about 17 feet across and two feet high, and had a circle of stones, somewhat burned, lying immediately under the surface, extending completely around it. This circle was about 15 feet in diameter, and 20 inches wide, and about three layers deep; the stones were not laid with any precision, but rather heaped in. There was nothing whatever within this stone circle. In the same woods, where these mounds are, and on the ravines bordering on this side of the fort, there are numerous stone graves, in which skeletons have been found, and many relics have been picked up in the woods. The first time it is plowed, the find will probably be very remarkable.

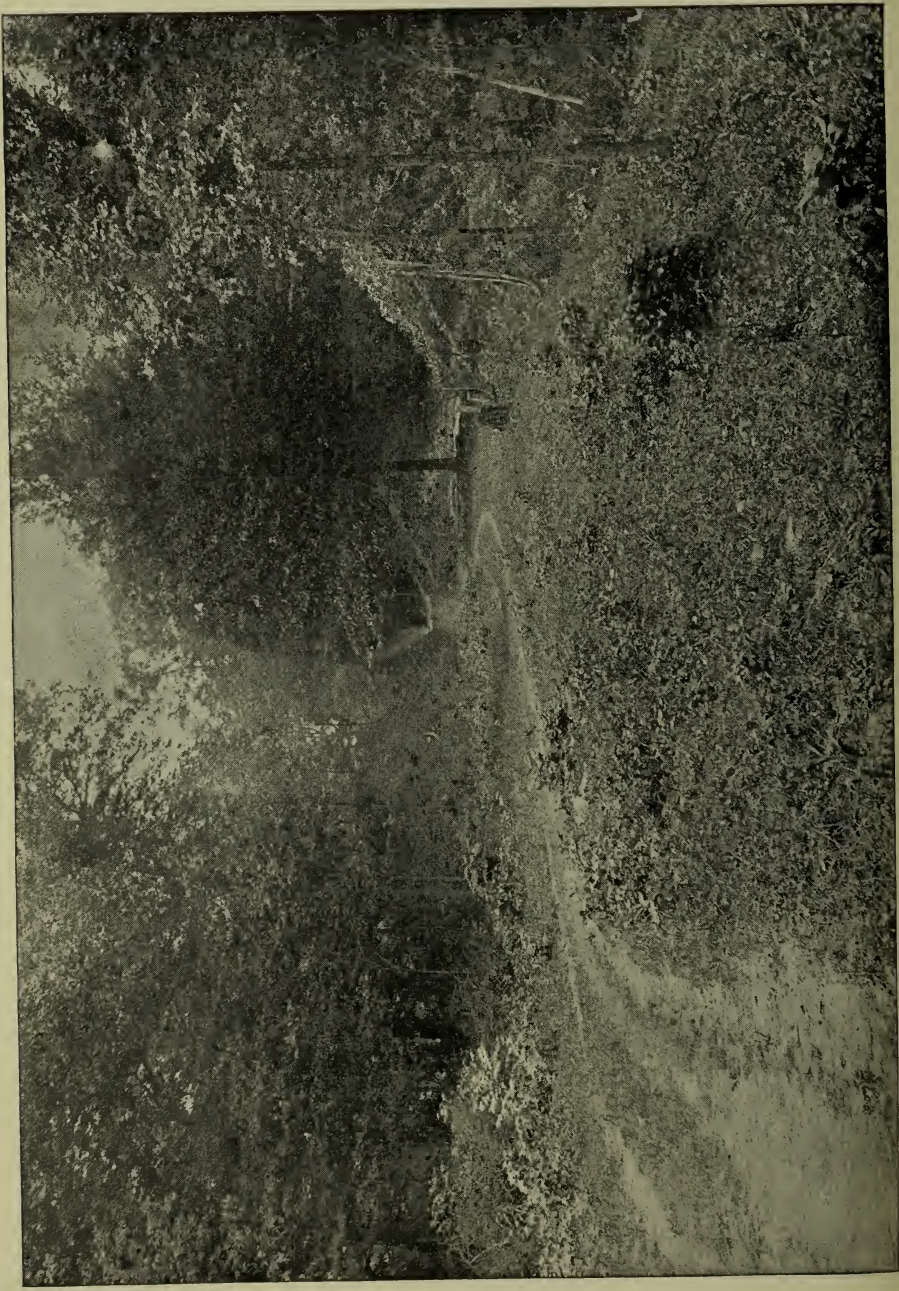
The terrace on the east side of the Great Gateway has on its surface many stone graves. We opened one or two of these and found some very interesting remains. We here give a few notes from the Field Book as taken on the spot, and upon the same day the finds were made.

The stones in this pile covered an extent of 20 feet by 80, the stone running from 15 to 25 inches in height, and

the quantity in the pile is not far from 460 wagon loads. The graves are near the Great Gateway, and are on the east side next to the hollow near station 104, and are on the outside of the wall. There they are on a terrace of 25 feet width; this terrace is about 19 feet from the top of the wall above. We commenced on the west side of the terrace, and dug out a space about 20 feet wide, which was carried right through the stone grave. We then passed over several places where others had dug, and took out 15 feet of grave in one part, and 10 feet in another at the other extremity of the terrace.

There were decayed bones scattered all through this stone pile, and pottery fragments in large numbers. These were under the first layer of stone, and very much decayed. They were not over 10 inches deep, most of them, but the larger and better preserved bones were about two feet deep. From the number of bones found, there must have been 18 or 20 individuals interred at this place. Some of the pottery found was decorated, but most of it was plain. In one mass of bones was a very fine celt seven inches long, by four inches wide. In another place was a limestone of about 20 pounds weight, that had three cup-shaped depressions on one side, and three deep grooves on the other, as if it had been used for sharpening a tool of some description; the grooves look as if copper had been sharpened. The cup-shaped depressions were probably due to the grinding of paint. No animal bones were found in this stone pile, but several very fine knives made of long curved flint flakes were found. These skeletons had stones heaped over them, not laid regularly. The bones were broken in small fragments, about two bushels in quantity. The bones were found in pieces not longer than six inches, and most of them less than four inches.

There is a large stone grave at the southern extremity of the fortification, just outside of the fort wall. The grave lies on a high terrace far above the river, and only 36 feet from the fort wall. The grave holds about 40 wagon loads of stone, which are heaped up and not laid in any regular order. Under these



C. J. Strong, Photo.

PLATE IX.—Great Gateway, at two hundred yards distant, looking South.

stones we found fragmentary bones, broken celts, and many flint chips. The bones, like those found in nearly all of the stone heaps, are very much decayed, and very fragmentary.

The terraces on the west side of the old fort, which overlooks the river, have scattered graves on them, some of which, when opened, yielded very interesting bones and relics; many of them, however, have nothing under the stone save broken and decayed bones. The river flows at the foot of the hill on this west side for some distance, and there are many points on the embankment where the descent to the river is very steep; an angle of 30 degrees, and where one could stand and shoot an arrow without difficulty across the stream. These terraces do not have graves their entire length, but only in certain places.

The following account concerning these graves, and copied from the Field Book, may be of some interest to readers:—Four of them were opened, situated on the terrace next to the top, or the third one, going from the river up. Two of the graves opened were located together, and may, perhaps, with propriety be classed as one large tomb. The stone contained in this grave would be equal in quantity to about 100 wagon loads, and is about two feet thick, spreading over a space the width of the terrace—20 feet—and was about fifty feet long. We threw out all this stone, which occupied the time of three men for two days, and under it we found a total of nearly 20 fragmentary skeletons. The skulls were crushed, and the jaws in most instances were broken, but such jaws as were saved we judged to represent individuals of average size, and quite strong. The teeth were much worn, as if they had eaten little vegetables, and their sustenance had been mainly derived from the flesh of animals. The bones that we did save entire, of the legs and arms, would indicate a people of about the same height with ourselves, but rather stronger.

There were the bones of children found in this stone heap, and, judging from the teeth of one, we should say it was about seven years of age. There were some inter-

esting relics, such as a clay dish, or vase, nearly entire, and about five inches high; a beautiful ornament or personal pendant about four inches long, with a hole drilled through it, made of black slate; several arrow-heads; and a stone celt of unusual finish and beautiful shape. There were no bones of animals in this stone heap.

The other two graves were situated further north, one on the center terrace, and the third on the upper terrace. These contained numerous fragments of skeletons, but nothing of any interest in the line of relics, save a few small beads, one or two arrow-heads, one spear-head, and a few pottery sherds.

It may be well to remark here, that along these terraces, and in the ravines, where it is very wild, we notice in surveying the fort many quail, rabbits, squirrels and, in fact, game of every description. The English sparrow has not yet invaded the sacred domain of the earthwork; we see and hear him at the railroad station below, but for some reason he has not taken up his abode on the hill. There are many beautiful red-birds, and their singing is delightful. We hear them whistling all hours of the day, and have seen as many as eight or ten of them in the top of one tree making the woods vocal with the melody of their music. The game seems abundant now; what must this region have been five hundred years ago?

We notice in the deep hollows and ravines a wonderful profusion of large ferns. These beautiful plants reach a height of three feet in places, and are gathered by admiring tourists and carried away by the thousand. Yet there seems to be no lack of them, and each year new ones spring up to take the places of those that have fallen. Students from Cincinnati and elsewhere come here to gather them for botanical classes, etc.

The earth wall along the west side is quite high in some places, higher than on the east side of the old fort. The ditch is quite deep here, and will average three feet below the level inside. The embankment in many places has a layer of stone underneath, presumably to keep it from slipping and sliding down the hill. Landslides in

limestone regions being not uncommon, the natives took precautions against the danger here at Fort Ancient. However, some consider the stones of very slight protection or support in case the wall should become loosened in an excessively wet season, and start sliding into the deep ravines. The stones can be seen cropping out at the base of the wall in every gateway. Near station 248 is a small stone grave overlooking the valley. It was on this point of land that Plate VIII was taken. The grave is a small one, there being not over two wagon loads of stone in it, yet it was one of the richest we opened. There were three skeletons beneath the stone heap. The skeletons were tolerably well preserved, more so than is usual with bodies found in such conditions. Plate XIV, page 56, shows a group of diggers just commencing operations upon this grave. The stones had been but partially removed when the view was taken. The bones were too much decayed and fragmentary to be photographed. With the skull of one individual was found a large flint spear-head, and with another several shell beads, a small but finely made arrow-head, and some ocean shells, which had been perforated and worn as ornaments. These bodies lay about 10 or 12 inches beneath the surface of the ground, with scarcely any covering. In every instance of excavations, the bones in the graves in the woods and on the terraces are found within a foot of the surface. It is by a careful examination of these skeletons, their position, and the location of the graves themselves, that we can arrive at any conclusion as to the difficult question of the builders of Fort Ancient, and the time of its construction.

These graves are therefore important, for they shed some light on the history of the place. One simple fact to be derived from them is this: Fort Ancient was built for defense. For no other conceivable purpose was it erected. The bodies found at so shallow a depth indicate that a battle, perhaps many battles, were fought here, and that those slain were hastily interred by their friends. There was no time or opportunity for a burial attended with ceremonies.

The aborigines always buried their dead with great

ceremony, and they almost invariably deposited with the body objects of stone, bone, or clay, as tokens of respect, and from religious feeling. Skeletons found without any of these trinkets, and so near the surface, are of unusual occurrence. There must have been urgent necessity for this mode of burial, and the most plausible reason that can be given is that suggested above.

In the river valley below Fort Ancient there was once a very large village of the people who built the structure. On this village site we find a great many objects that were used by these people about their wigwams, or in the chase, or in war. This village extended over a space of ground about a half mile long and four hundred yards wide. The traces of occupancy are more numerous in some places than in others. We here take from the Field Note Book an account of the work we did on this village site, and what we found.

The land on which it was situated is owned by Mr. Chester Poor of Cincinnati. We dug very extensively in a corn-field bordering on the Little Miami river. The river here has a bank on the east side, about 12 or 15 feet in height. As the river each spring cuts into and washes out this bottom, a very thick and high hedge has been planted about 20 feet back from the embankment. We were requested not to dig on the river side of this hedge, and therefore confined all our excavations to the east side of it. The first large excavation made was back from the hedge about 30 feet. At a depth of two feet we found numerous bones of animals, ashes, and pottery fragments. The soil at this point is a heavy black loam with some sand in it. It is very rich, and raises annually splendid crops without fertilization. The bones taken out from the depth of two feet were mostly in small pieces, and they were not nearly so numerous as those which we found at a depth of four feet. Four feet of earth has accumulated since the great village was there. It is at this deep level that we find pottery of a beautiful texture and finish, and implements of a better grade than those found at the two-foot level.



The following description in detail will show the position of each object :

In these excavations the same order of arrangement is noticed every-where. First, there is a layer of loam about two feet thick ; then there is a thin deposit of ashes, charcoal, etc. Then there are two feet to thirty inches of sand and loam, and the heavy deposit of refuse. At five feet we find, in places, a thick layer of bones, pottery, etc.; it is not, however, continuous like the four-foot layer, and the village that left it was not so large as the two later ones. In some excavations the bones are few, and the mussel shells scarce. In others we seem to strike the site of a lodge and find many remains of occupation.

A few pieces of pottery of a dark red color, which were thick and clumsy, and a few bird bones were all that were found at two feet from the surface. From a depth of two feet until we had reached a depth of four feet we found nothing. At four feet we found the greatest deposit of objects described. This fact indicates that a very considerable length of time had elapsed since the first village was abandoned before the next one was occupied. At this level we found a large black mass of ashes, and soft earth, and burnt stone ; such as would result from long continued cooking on one spot of ground. In this mass of ashes were the bones of 17 animals and birds, and many fish scales. We also took out eight bone needles or awls, such as the women of the tribe would use for the manufacture of garments of deer skin. Some of the pottery fragments found at this level were quite large and nicely decorated. The bones represent the following animals and birds : bear, deer, elk, musk-rat, ground-hog, raccoon, squirrel, rabbit and wolf, wild turkey, wild duck, hawk, owl, quail, cat-fish, turtle, and gar.

In this bottom we made a total of twenty excavations, which occupied about three days' time, three men being employed in digging. It might be well to describe here the decorations on some of the pottery. This is shown in Plate XXVII, page 102. The prevailing decoration seems to be curved lines and dots. Some of the

pottery shows basket molding, but most of it was fashioned by hand. The finish on all of it is quite superior. There never was but one or two whole jars taken from the sites of these two villages. One of these we have in our possession. It is, like all Ohio pottery, small and of oval shape, tapering at the base, and having a large opening at the top. In outline it resembles an inverted pear. It is decorated with dots and X's. The finish is good; the clay of which it is composed is quite hard; the color a dark red.

In some of the excavations we found great ash heaps, three or four feet across and two feet thick, frequently extending to a depth of six feet. In these ash heaps we made our richest finds, always taking out deer antlers, etc.; some of which had been artificially sharpened to be used as needles or perforators. Many large bones of the deer and bear were split lengthwise, so that the marrow in the bone could be extracted. This was considered a great delicacy by the Indian tribes. In our excavations we found that ashes have a wonderful preserving quality, so that the most minute bones and fish scales were in almost as good condition as on the day they were thrown down. Many mussel shells were found, which were used as scrapers or dippers, having a large round hole through the center, through which one of the fingers was thrust, and thus making the large shell much more easy to handle.

Becoming somewhat discouraged with the monotony of unearthing objects of the same general character, excavations were suspended in this region. An event happened, however, which set us to work again with redoubled energy. A man who had been employed with us for a time, but who had ceased work, began operations on his own account. We were of the opinion that few, if any, human remains had ever been interred at this place; at any rate, if there had been such burials, the bodies had long ago crumbled into their kindred dust. The person alluded to, however, succeeded in a brief time in discovering a remarkably well-preserved human skeleton adjacent

to this village site. Immediately upon hearing of the find, we renewed our efforts. The ground was carefully gone over, and examination made with a view to discover where he had excavated. It was not difficult to locate, for, although he had sought to conceal the spot by covering it with dry earth, his efforts were not very successful.

We dug out the place thoroughly and found one-half of the skeleton in the ground which he had disturbed. We tried to save the bones that had been displaced, but found he had ruthlessly broken most of them. Thinking there might be something further in the immediate vicinity of this skeleton, we ordered the men to open large holes all around the spot where the body just referred to had been found. This resulted in the finding of several bodies of children. Just three feet north we found the skeleton of a child about two years of age. This body was walled in with limestones, which were selected with great care evidently, as they had very straight edges and were fitted closely together.

The stones were placed above the body, at the head and the feet, and on each side. The bones were in a very bad state of decomposition. The stones covering this body were two feet by sixteen inches, and weighed seventy-five pounds each, and were three inches thick. They are the largest stones I have ever seen covering a grave. The length of the child was about 18 inches. (It is one of the smallest skeletons ever taken from a grave in this section.) At the head of the tomb were four shell disks one and one half inches in diameter, and having two, and some of them three perforations. There were two small shell pendants, or ear-bobs, on each side of the head, near where the ears were. There was also a fine arrow-head of clear chalcedony near the right arm. The skeleton lay three feet deep in the ground, and was nearly doubled up, as if it had been placed in a sitting posture and allowed to fall over.

Just above the skeleton was a large ash pit four feet long and three feet wide, which contained a great many animal bones as well as those of birds and fishes. In the large

ash pit just mentioned were more fish scales and wigwam refuse than in any place previously inspected. There were present half the fragments of two large clay jars. It is with regret that we are compelled to narrate that these are too fragmentary to admit of their being restored. Plate XXVIII, page 104, shows the skull which was taken from the grave in the river bottom, and which we have referred to above.

Soon after the small skeleton, referred to upon page 43, was taken from its grave, one somewhat smaller was unearthed. This latter one was less than one foot in length, the collar-bone was just an inch and a quarter in length, the femur and tibia laid together were barely five and one half inches long. The ribs and trunk bones had disappeared, but little of the skull remained; the bones of the head that were found were as thin almost as paper, and crumbled upon being handled. How so minute a skeleton could last so long is beyond our comprehension.

In the New Fort there is a small mound, number 65, near the embankment at station 4. Mr. Joseph Wigglesworth, of Wilmington, Delaware, superintended the opening of this mound. In it was a fragmentary skeleton, much decayed. Nothing else was found. As there was considerable of burnt stone upon this structure, the opening of it was looked forward to with considerable interest, but the results were rather discouraging.

In attempting to estimate the age of the village site in the valley, several things must be considered. There are five feet of earth above the lowest site of village deposit. This may have formed in a short period of time, or it may have been five hundred years in forming. When the river is very high, it overflows the bottoms in which the village was located, and, when overflowing, it frequently deposits quite a layer of mud or sand in a field. It also takes away sand and mud quite as frequently as it leaves it. One bank of the river during a flood may be built up while the other is torn down. But it is very sel-



C. J. Strong, Photo.

Opp. p. 46.

PLATE XI.—Great Gateway View of East Wall, Camera looking Southeast;
distance to base of embankment, 165 feet.

dom the river gets high enough to flood this bottom to any considerable depth.

But there were hardly as many floods in the river in early days as now. The same amount of water fell, probably more, but the land was not cleared, and the streams would not discharge their contents so rapidly into the river. Now we have low water in summer, and a flood every spring. Old settlers can remember when the river was lined with heavy timber, and when there were numerous swamps along the bottom lands; and they tell us that the river contained an even stage of water from year to year; that the streams during the winter held much water, but were seldom more than bank full. Trees, logs, and brush, accumulating in the stream, tended to check the flow of the current; the roots of large trees extending down into the water's edge would hold drift and thus form dams. The fact is attested by this: Eighty years ago there were saw-mills on streams now so small they would not turn the least water-wheel. The writer has heard his grandfather and grandmother (who came to Ohio in early days by canal-boat, long before railroads were invented) speak of creeks in the neighborhood of their old home, that once furnished water enough to turn the wheels of several large mills. These same streams now are dry through the summer, but they get very high in the winter and spring.

Now the point is this: The earth over the second or later village site has been deposited by floods during the last hundred years, or since the land has been cleared. The earth (three feet) above the first or lowest village site, and below the later village, has been much longer in depositing, as floods then seldom covered the bottoms for reasons given above. This lower layer is composed chiefly of decayed vegetation, and might accumulate at the rate of one inch in six years, which would give the age of the lowest layer 216 years previous to the upper one, or 316 years ago: *i. e.*, 1570 to 1575. However, these figures can not be said to be accurate, and we give them as result of

careful examination, but wish it understood we will not vouch for their absolute accuracy.

Plate XXVIII, at page 104, shows a well-preserved skull from the village site. The skull is that of a young woman about twenty years of age. It is very unusual to find skeletons buried near the village site except those of children. The children seem to have been buried near the wigwams, perhaps just back of them, but the adults have been taken to the hills and placed in mounds or graves. The skull is very well shaped, and there seems to be considerable intelligence displayed. The facial angle is good, the brain cavity large, the bones thin, and the whole thing impresses one with the conviction that it pertained to a very intelligent Indian maiden.

Of several entire skulls found, and many fragmentary ones at Fort Ancient, it can be safely added that they belonged to quite a superior race of people. Whether these skulls found represent some of the builders of Fort Ancient, we can not say, but it is probable that they knew something of the inclosure, and might have been able to tell us who did build it.

Some few skulls have been found which are very thick, low, and ill-shaped. The facial angle of these is very acute, the forehead running immediately back, like that of an African. In most of these heads the brain capacity is small.

The question, whether two races of people inhabited this region at the same or different times, or that these skulls are representative of warring tribes brought into conflict at this spot, is open for discussion. Professor Putnam is the most careful and thorough worker in the field, and his opinion upon this matter would carry great weight. He says that there is evidence of a mingling of races in the Miami valley, if not in the valleys of the Scioto, Brush Creek, etc. He has found skulls of several different races in the mounds and graves through southern Ohio. Professor Putnam would not make such a statement, unless he had good grounds for it. It is therefore very evident that these skulls found here can not belong to

FROM
MISS MILLARD,
BOOKSELLER,

Jeddington April 23 1870

The Editor of

The Athenaeum

With Miss Millard's

Compliments

They are sole agent for
this work in Great Britain
& the Continent of Europe

the same people. The skulls from the *stone heaps* are the thick ones, those from the *stone graves* are the well-shaped ones.

Skulls of the same people differ and present a variety of forms, but it is not possible that the same differences will be noticed in each specimen. It is by taking a number of skulls and studying them as a class, that we get at the general characteristics and obtain an average. Thus we see differences between the skulls from the heaps and the stone graves, because we have found enough of them to classify and study quite a number of each variety.

There is much work to be done at Fort Ancient yet in craniology, and, as we did not open all of the heaps and graves, it would be well for some one to carry on further investigations in this direction. With reference to the mingling of two races it is not for us to pronounce, but we think it not improbable, that at various times different tribes have occupied this region.

The finding in the valley of three village periods would strengthen our belief that there have been several tribes, or clans of the same tribe at this place. But, as suggested already, the evidence is not sufficient to decide the point with certainty. That we find pottery of a different texture at the several levels, and that the pottery found within the walls of the old fort is entirely diverse from the pottery found in the valley, is undoubtedly true.

Pottery from Missouri and pottery from Tennessee differ materially. The pottery in the fort looks like the Tennessee variety, while that in the river bottom at the two-foot level looks like that found in the western part of the State of New York. That found at the depth of four feet is like the pottery found at Madisonville in every particular.

Did not the natives at Madisonville have something to do with the building of Fort Ancient? May not tribes from western New York and Tennessee have made an invasion into the territory of the Miami valley?

Who can answer?

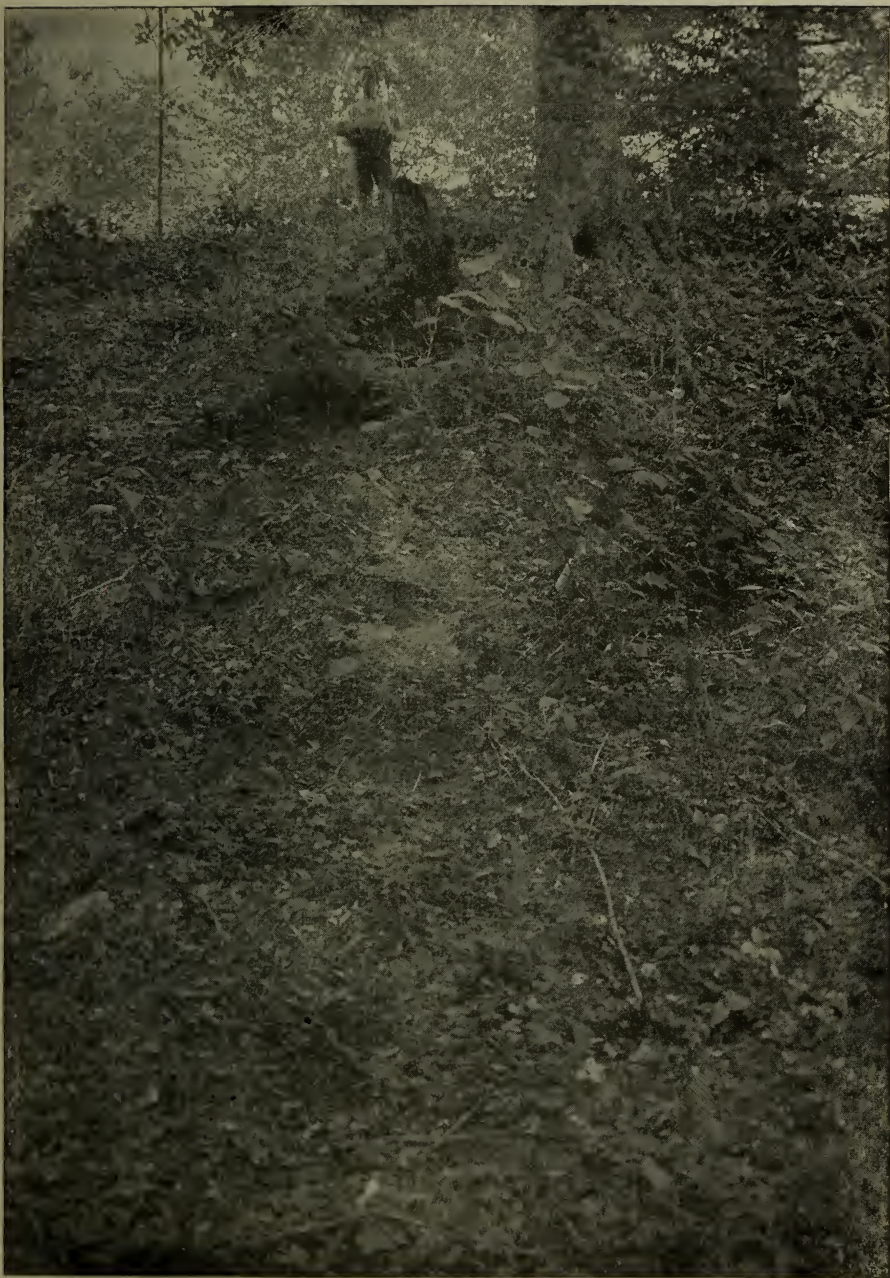
CHAPTER IV.

THE VIEW FROM STATION 0. THE MOUNDS AND THEIR CONTENTS. THE PAVEMENT. RELICS FROM THE FIELDS.

Now, to return to station 0. Stand at this station and look 2,000 feet toward the south—toward the woods. There is an open field on each side of you; you are on an ancient embankment 22 feet high, and you look to the right and then to the left across a level plain, in each direction; far off to the west, a quarter of a mile away, is the other side of the fort wall, and if you could look to the south, 4,800 feet away, you would see the extreme southern point of Fort Ancient, terminating in a great, conical-shaped embankment, 20 feet high. You walk along this section of embankment, past station 0, and station 4; there are four stretches of embankment as shown in Plate IV. Our picture was taken at a distance of 1,100 feet.

There are three enormous trees growing on this wall across the plain which must be nearly 140 years old each, and one of them, an extra large poplar, we estimate roughly at 160. The embankment is very regular; the gateways have about the same width at the top, the same depth, and the same slope. There is a ditch on the east side, following along the entire extent of the wall across the plain. This ditch begins at a large mound on the edge of the road, or mound No. 69 (see Plates XXIX and XXX, pages 106 and 107). There is another ditch, beginning at the other mound and running to the south-west, where it widens into a deep hollow at 200 yards distant from the starting point.

We were first told of these ditches by Mr. George Ridge, but Caleb Atwater printed the earliest account of them, in 1820, in the proceedings of the American Anti-



C. J. Strong, Photo.

Opp. p. 50.

PLATE XII.—East Wall of Great Gateway, at the highest point. Camera is pointed West. The View is from the base upward.

quarian Society, Worcester, Mass. They can scarcely be traced now, as the plow has gone over them so frequently as nearly to obliterate every trace. The experienced eye of an antiquarian can trace them with some precision, although it is quite difficult in some places. The two mounds that lie at the head of these ditches, have been somewhat injured by the state road running between, but, from a careful examination of the mounds, we are led to believe that the edges at the base once came within 60 feet of each other.

Both of these mounds have been opened and their contents carefully inspected by Mr. Fowke. The mounds are 75 feet apart, on each side of the pike, as shown in Plate XXIX, page 106. We are looking toward the east in this plate. The distance from station 2 to the large mound on the right is 375 feet. The distance from station 1 could not be obtained as readily as from station 2, but the distance is about the same, as the mound and the two stations named form a triangle. The large mound is No. 69; the one to the left, No. 68. The latter was opened first. For many years it was thought that this mound and its mate would contain many rich relics, and a number of skeletons. So the opening of them was looked forward to with not a little expectation by persons residing in the neighborhood of Fort Ancient. But all were doomed to disappointment. The following, taken from my field note book, gives a concise account of the work done in No. 68.

This mound is 10 feet in height, and has a diameter at the base of 80 feet. We began operations on the south side, and ran a wide trench, fully one half as wide as the mound, through for a distance of 40 feet, or until we reached the old diameter on the north. (The old diameter was 40 feet; the mound has been cultivated, and has washed badly, so that it is now 80 feet wide at base. The portion that has accumulated from wash and decay would, of course have nothing in it.)

The mound was found to consist of two kinds of earth—a dark loam and a yellow clay. The clay was piled

up first, and then the loam was heaped upon this. The mass of clay is heaviest on the west side; the loam heaviest on the east side, thus making the mound symmetrical. At the base line there is a layer, four inches in thickness, of heavy black soil. The remarkable feature connected with this black soil is that *it has a very offensive odor*. In over 70 mounds and graves opened during the last two years the writer never before met with such an instance. In digging out a trench running north-east from this mound, the same odor and same soil was found in the bottom, fully five feet from the surface. The odor is like that of decayed flesh. But flesh of bodies (now skeletons) in other mounds leaves no odor. It may result from decayed vegetable matter or skins. There can be no doubt about the smell, as all the workmen noticed it, and called our attention to the peculiarity. This odor was noticeable for a space of twenty feet. There were no traces of decayed bones, except small fragments of animal bones, in the structure. There were fragments of a finely finished pottery found, and some charcoal flakes. There were two pockets of soft earth and ashes, but they contained no objects. The conclusion drawn from this mound is, that it was built at two periods, that it was "lop-sided" or ill shaped at first, and righted when built upon again. What length of time intervened between the commencement and the completion can not, of course, be determined, but, probably, not much, as there is no line such as would result from decayed vegetable matter between the first and second earth masses.

Mound No. 69:

This one is just across the road from No. 68, and is 12 feet in height, having a diameter at the base of 80 feet. It has not been injured to any great extent by plowing. There is a large elm tree standing near the center and a little to the west, which has served as a protection to the soil.

In Plate XXX, page 107, we are looking toward the west, with the mound in the foreground and the em-



F. Biddle, Photo.

PLATE XIII —Stone Heap on East Terrace near the Great Gateway.

bankment beyond. The grass and timothy growing upon the mound is very long, and hides, in part, the structure.

We began our trench on the south side of this mound. The earth in the mound was very hard, so that three men were employed five and a half days in digging through. There was no evidence that the mound was built at two periods. The earth was all yellow clay, and there was a small patch of dark earth here and there. In the interior were found pottery fragments and animal bones. No trace of human bones was discovered.

The two mounds, supposed to be so rich in remains, were found to contain nothing. The first one may have been used as a burial tumulus, but no evidence of it now exists. If there were any skeletons deposited therein, they have long since been reduced to dust. If the two mounds were not intended for some purpose, ceremonial or observatory in character, we can assign no other use for them.

Perhaps the best thing we can add is: "*We do not know any thing about them.*"

Running due north-east from these two mounds are two parallel roads or embankments about a foot in height and twelve feet wide. These run for a distance of 2760 feet, and terminate by inclosing a small mound about three feet high. These parallel embankments have been almost entirely destroyed by being cultivated for many years; they are only visible where fences run over them, or where a road crosses. They are 130 feet apart.

In 1820, when Caleb Atwater first surveyed the fort, these parallel walls were very plain, but since then they have become so nearly effaced, that scarcely any trace of them remains. We traced and measured them, however, with as much pains-taking fidelity as possible—as we are persuaded that the next survey of Fort Ancient, if made as long after ours as this is distant from that of Squier and Davis, will find that every vestige of the walls has disappeared. These walls have nothing between them except the stone pavement, and that extends for but a short distance. There is nothing peculiar about their construc-

tion, there being no stone in them. In places the walls appear to have been burnt until the ground is very red.

Where the two mounds are (at the western extremity of these parallel walls), there begins a most remarkable stone structure of aboriginal workmanship. This stone pavement is the most interesting part of Fort Ancient. The following description is taken from my note-book, and was made while we uncovered the stones, and examined this wonderful relic of departed ages.

THE PAVEMENT.

Thursday afternoon, September 12th, we took our force and went into Mr. Ridge's house-yard, to seek the stone pavement, of whose existence we had heard from various sources, but which none of us had ever seen. Some of our party were skeptical touching the matter, others were persuaded that something there was, and were inclined to test the truthfulness or falsity of the reports. An excavation four feet in width and ten feet long was made, and one portion of the pavement was actually laid bare. We found at a depth of twelve inches a considerable quantity of fine gravel, which had been filled in between the stones, and which seems to have been intended to secure evenness of surface. The pavement is laid with limestones, which were probably brought from the ravines and creek-beds in the neighborhood. The stones average a foot in length and six inches in width. Some of them are larger, and others of less dimensions. Some of them are about two or two and a half inches in thickness, others not more than an inch and a half. The pavement rests on the original surface, the clay being 14 to 15 inches below it. It is supposed to have been on the surface, of course, and the earth above is due to vegetable decay and the accumulation of debris. Some of the stones give evidence of having been subjected to the action of fire, but most of them show no trace of heat. The use of this pavement is wholly conjectural. We venture the opinion, however, that it does not imply any great ceremonial or religious purpose, but was designed as a place of amusement, or of assembly for the

natives. It would always remain dry, while the surrounding ground might be wet and muddy.

Its area, approximately, is 130 by 500 feet; large enough to accomodate hundreds of persons. The natives may have held dances on this platform, and the mounds, being near the parallel walls of the way, would afford an excellent position for on-lookers, and for the squaws, who would beat tom-toms, and accompany the dance with their usual doleful singing. Or, it may have been used for the practice of games and athletic exercises, such as are common to the race. This much, at least, we may safely affirm: that the pavement is artificial, and that it is of great archæological value; perhaps of no great ceremonial significance, but still one of the most interesting features connected with Fort Ancient. We believe this is the only instance of ancient pavement proven beyond a doubt in the Mississippi valley. There are many other places where there is stone in connection with aboriginal structures, but there is no place where these assume the shape of a regularly laid pavement. The plow has greatly disturbed in a number of places a few of these stones, but most of them are as they were placed at first. They seem to have been slightly worn on the upper side, as if they had been used for many years as an assembly-ground.

The earth, which has accumulated over them, would give them an age of several hundred years at least. Of course, these stones once lay upon the surface, there could be no object in covering them up. They must, therefore, have been covered by time alone. The earth in a forest accumulates rather slowly, and, allowing ample margin for any error, we are safe in saying that several hundred years have rolled by since the pavement was used. We would place the date about the year 1400 or 1430. This is, of course, merely conjectural.

We find no evidence in any other portion of Fort Ancient, that a pavement has existed. We find a great deal of stone work here and there, but we think this is the only place where there was an "assembly floor" built by the aborigines.

Mr. Hughes says that fifty-five years ago, when he first saw the pavement, there was as much earth accumulated over it as there is at the present time.

SURFACE FINDS.

There are several places within the fort-walls and in the immediate vicinity, where there is evidence on the surface that a great many flint implements have been chipped and made. The place where these chippings are most abundant, is on Mr. Ridge's farm, about 200 yards from the fort wall (station 0), north-east. From the two mounds at this point runs a ditch north-west, and from this ditch, for the space of 100 yards north-east, we find many flint flakes, cores, etc. There is no flint found in the neighborhood of Fort Ancient, and so the flint flakes and disks must have been brought from a distance. We find a great deal of broken flint of the variety found in the quarries on Flint Ridge, in Licking county, Ohio. We also find a great deal of dark gray, or nearly black flint, which has been taken from quarries on the Ohio river in Indiana. It seems probable that the residents of Fort Ancient, considering they did not have implements enough in case of a siege, kept stores of raw material, such as could be worked up into a desired shape at short notice.

A great many large flint disks or blocks have been found in the field north of the fort. These disks and blocks are frequently large enough to make several large spear-heads, say six inches in length. Or, if the blocks were broken up, they would furnish sufficient material for the manufacture of forty or fifty arrow-heads. These blocks have been worked out roughly in Indiana, or at Flint Ridge in this state, and transported to Fort Ancient in large quantities. The flint was not brought in rough pieces, as when freshly broken from the ledges. It was worked down partially until it had a regular outline. These worked objects are usually over six inches in length, and weigh from one to four pounds. We call them blocks when not round, when of a circular appearance they are named disks.

C. J. Strong, Photo.

Warren K. Moorehead.

Joseph Wigglesworth

Opp. p. 56.

PLATE XIV.—The Excavation of a Stone Heap near Station 246.



There has been a number of quartz arrow-heads found in the surrounding fields, which would indicate that the people here had communication with southern tribes, or that southern Indians passed through this region. But perhaps the quartz was obtained by trading with these natives from the south, as it is hardly probable that any southern tribes ever occupied this region. The arrows may have been lost in hunting, or shot in war; we can not say.

From the presence of countless objects of Indian make, found in and around the fort, the conclusion is not only legitimate, but unavoidable, that either the place was occupied by aborigines in large numbers, or that it was their habitation for a long period of time. Perhaps both statements combined would be nearer the truth. These objects consist principally of flint implements of various kinds. Plate XXXII, at page 109, presents a view of an assortment of flints, such as once literally abounded over this entire region. In the center is a large spear-head of black flint, five inches in length (the illustration is one-half the natural size). On each side above and below are arrow-heads of two patterns, the war or triangular point, which has no notches to fasten it to a shaft, and the barbed arrow. Lying diagonally from the spear-head are four flint knives. At the bottom in the illustration is a quartz-crystal arrow, which does not show up very distinctly, because it is colorless. Quite a number of these crystal points are found on the fortification. Quartz was brought from a distance by the Indians, as none exists near the fort. There have been numbers of stone tomahawks and war-hatchets picked up in the vicinity, as also many stone celts.

Plate XXXIII, page 110, shows three of the stone celts, or war-hatchets, in the center, and one of the grooved axes above. On each side in the plate are two unfinished pipes of catlinite. The material is generally considered modern, but the facts seem to disprove the notion, for a number of pipes of ancient date, made of it, have been found.

It is conceded by antiquarians that a platform-shaped pipe is one of the oldest varieties. These two uniform catlinite specimens show the platform style. They were found two feet below the surface in the old fort, near a pile of stone. The two lay together.

Many collectors of relics have visited the fort during the last few years, for the purpose of purchasing the various objects in which they were specially interested. The farmers living in the vicinity generally preserved all the specimens they discovered, and sold them as opportunity offered. A number made it more or less of a business. Thus the mass of the objects found has been saved. Three of the largest collections in the neighborhood are made up almost entirely of objects from this fortification.

In Waynesville, Ohio, there is a gentleman living, who has some very fine objects of aboriginal workmanship from the neighborhood of Fort Ancient. Among them there are a number of copper axes, some fine effigy pipes, some rare discoidal stones, etc. In his collection are hundreds of axes, pestles, celts, ornaments, arrow and spear-heads. All these came from within a few miles of Fort Ancient, and exhibit a sameness in workmanship, which goes to show they probably were used by one tribe. The total number of objects that he owns from this place is not far from three thousand.

A gentleman who lives in Lebanon (six miles from Fort Ancient) has a very large collection of objects from the fields in the neighborhood of the inclosure. Over 5,000 specimens in his large cabinet came from the vicinity of the fortification.

At page 111, Plate XXXIV, there are some fine ceremonial objects from the author's cabinet. These all came from within the walls of Fort Ancient, and have been found within the past ten years.

It is related by many of the older farmers living in the vicinity of the inclosure, that in early days, when the land was first plowed, they used to find thousands of objects every year. When we consider the vast number that has been carried away by travelers, the many that have

gone abroad, and the thousands that are in the hands of private collectors, in the immediate neighborhood of the structure, this seems to be no exaggeration.

The ceremonials shown in Plate XXXIV, page 111, present a variety of forms. At the top are two sandstone objects (all these are shown about two-fifths natural size), which have grooves and depressions. The one to the left has depressions that resemble finger-marks; the one to the right as if a tool of copper had been sharpened upon its surface. These were found in the Old Fort.

No. 807 was found in 1884, and is a heart-shaped ornament of red slate. It is finely finished, polished, and worked quite thin.

To the right of the heart-shaped object is an ornament of banded slate, having two perforations. This was found in a grave by a farmer residing within the walls of the fort.

The plumb-shaped object next to it, is of blue slate, has a groove cut around the upper portion, as if it may have been used for suspension around the neck, similar to an ornament.

Lying elevated on two stones are two tubes or hollow cylinders of slate well bored and presenting a symmetrical appearance. The use of these slate tubes is purely conjectural, and the term "ceremonial" (which is a convenient way of dodging the question of use), may be applied to them. They were found in the New Fort.

No. 799 is a paint cup of soapstone found in a grave in 1884.

To the right is a small discoidal of white limestone. Several of these discoidal stones have been found near the fort, and one or two large ones are owned by a gentleman in Lebanon, O.

Nos. 905, 881, and 897 are all black or banded slate ornaments of superior finish and large size. There seems to be quite a number of objects of this class found within the walls, and it is a noteworthy fact that they are always of superior workmanship, seldom broken, and occasionally unfinished. In other localities it is very rare to find a perfect ceremonial implement; they being almost inva-

riably broken or damaged. The two at the ends came from graves, the center one is a surface find. These illustrate the many fine objects found in graves, of which there is little record. Many, many graves about this place have been opened by ignorant persons, simply to obtain and sell the objects found.

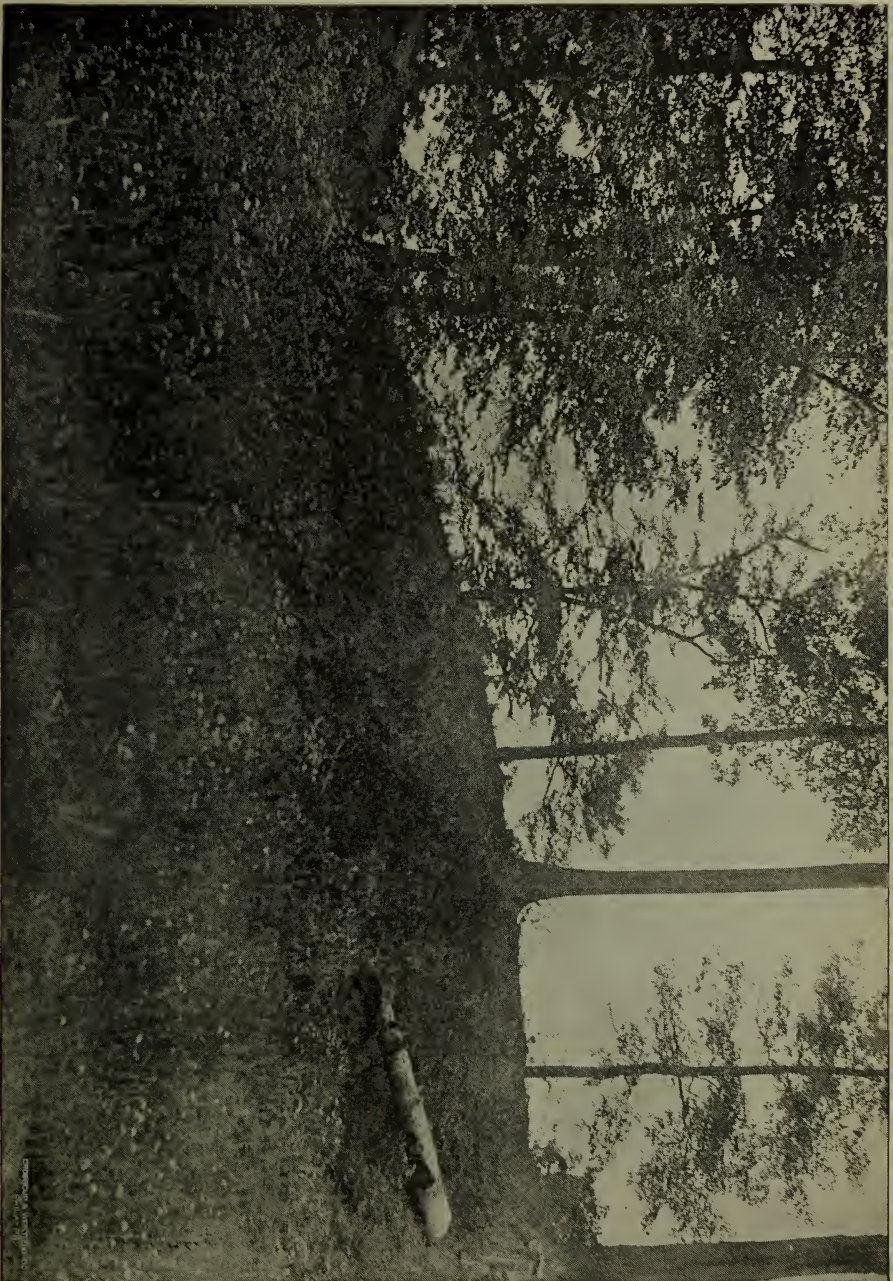
Plates XXXV and XXXVI, pages 112 and 113, show the finest ceremonial stone ever found at Fort Ancient. The material is black slate, very hard and quite close grained. There are two grooves on the face and back of this object. One runs from the top down about an inch and one-half, the other runs straight across. In the angles formed by these two grooves are two perforations extending through the stone and drilled from each side. At the bottom is an oval-shaped hole on the face extending through. This latter perforation does not exhibit the oval shape from the rear, but presents a round appearance. Around this oval-shaped depression are 14 holes, each drilled about one-eighth of an inch deep. They present the form of an arrow-head, or of a heart. We are of the opinion that they are intended to represent the form of an arrow. On the reverse side, are two holes above the oval perforation which are not drilled through the stone, and which lie close to it just under the horizontal groove. The remarkable part of this stone is that the symbol, three, occurs on it in three places—on the face twice; and on the reverse once. Some attach great importance to this; but we think it purely accidental.

Many other fine relics have been found and carried away from here. The number handled by farmers, collectors, and tourists, in the 90 years this place has been known, might safely be placed at from two to three hundred thousand. The annual number of tourists visiting the fortification is not far from 2,000.

Plate XXXVII, page 114, contains objects taken from a mound a short distance south of Fort Ancient. Three plates of mica are seen at the top, one-third their natural size. On each side of them are two rough flint celts, and below, a copper plate, four and one-half inches by seven

F. Biddle, Photo.

PLATE XV.—Gateway on the East Side of Middle Fort, at Station 86.



Opp. p. 60.

and one-half, an eighth of an inch thick, and weighing half a pound. It has two small perforations, but has no trace of cloth, as has some mound copper. It will be observed that this plate has a circular depression sunk into the lower part. It was found over the head of a skeleton, with the circular groove fitted to the nose, and the two holes adjusted to the eye-sockets. This may have been intended as a kind of mask put over the face of the dead. On each side of it are two greenstone celts from the same mound. Copper has seldom been found in the inclosure, and this is mentioned as proof that it is not uncommon in tumuli near by.

CHAPTER V.

WHAT OTHERS HAVE SAID ABOUT FORT ANCIENT. ATWATER, THOMAS, PEET, MACLEAN, HOSEA, LOCKE, SHEPPARD, SHORT, ETC.

The first printed account of Fort Ancient that we have record of, is in the "Portfolio," published in Philadelphia, in the year 1809. It was described and a plan given in the "Pioneer," of Philadelphia, also in the year 1809. It was described and figured in Drake's "Pictures of Cincinnati," in 1815. Caleb Atwater, in 1820, in the "Transactions of the American Antiquarian Society," described Fort Ancient, page 156.

After a few preliminary remarks, Atwater writes as follows:

"In several other places, the walls may never have been completed; some have supposed it was intended as a work of mere sport in the authors. I have always doubted whether any people of sane minds would ever have performed quite so much labor in mere sport. Probably, those openings were neither gateways nor produced by the action of water, but were from some cause left unfinished. Some persons, from the shape of these works, have even believed that the authors intended to represent by them, the continents of North and South America. But the walls follow exactly the brow of the hill, and the works are built to suit the position of the ground, where it is hilly and precipitous; where it is not, the walls suddenly rise to a far greater height.

"The three parallel roads, dug at a great expense of labor into the rocks and rocky soil adjacent and parallel to the Little Miami river, appear to have been designed for persons to stand on, who wished to annoy those who were passing up and down the river. The Indians, as I have been

informed, made this use of these roads in their wars with each other and with the whites. Whether these works all belong to the same era and the same people, I can not say, although the general opinion is that they do. On the whole, I have ventured to class them among 'Ancient Fortifications,' to which they appear to have higher claim than almost any other, for reasons too apparent to require recital. The two parallel lines, 'B,' are two roads, very similar to modern turnpikes, and are made to suit the nature of the soil and make of the ground. If the roads were for foot-races, the mounds were the goals from whence the pedestrians started, or around which they ran. The area which these parallel walls inclose, smoothed by art, might have been the place where games were celebrated. We can not say that these works were designed for such purposes; but we can say that similar works were thus used among the early inhabitants of Greece and Rome."

According to his description, the wall has washed very little since 1820. It looks now as it did then.

REFERENCE: J. P. MACLEAN. (Page 20.)

"Fort Ancient. No work on the mound-builders would be complete without a description of Fort Ancient, the most celebrated, and the one most generally known of all the fortifications of this people. It is situated on the east bank of the Little Miami river, in Warren county, Ohio, and about 33 miles north-east of Cincinnati. It has been frequently surveyed and much has been written concerning it, so that in this place it will not be necessary to give an extended notice of it. Reference to the accompanying engraving will assist the reader in forming a conception of the structure.

"The terrace, upon which the fort is located, is very difficult of access from the west. The road leading from Lebanon to Chillicothe passes through it on the north, and its descent into the valley is steep and winding. A few years ago, the inclosure, for the most part, was covered with a primitive forest, with a superabundant under-

growth, consisting chiefly of blackberry bushes. It has already been stated there are about five miles of wall inclosing an area of little more than 100 acres. The embankment is composed of a tough diluvial clay, ranging from five to 20 feet in height, and averaging between nine and 10 feet, and contains 628,800 cubic yards of excavation.

“The hill upon which the work is located is a level plain, divided into two parts by a peninsula, its summit being 230 feet above the level of the Little Miami. The position is a strong one. On the west, toward the Little Miami, is a precipitous bank of 200 feet; two ravines originate near each other on the east side, and, diverging, sweep around the hill and enter the river, the one below and the other above the work. On the very verge of the ravines, the embankment is raised and winds around the spurs, and re-enters to pass the heads of gullies, and in several places is carried down into ravines from 50 to 100 feet deep. Where the work is most exposed to an enemy, it is of the greatest solidity and strength; at the isthmus the walls are 20 feet high. Where the Chillicothe road enters from the west, the walls are 14 feet high and 60 feet base. The south division is naturally impregnable to any assault that could be made by a primitive people. In order to protect themselves should the north division be carried, two crescent walls have been thrown across the isthmus, with the convex side toward the north; a little south of these are two mounds, situated at the narrowest part of the isthmus. On the steep slope of the southern portion of the hill, where it approaches nearest the river, as a further precaution, have been constructed three parallel terraces, which command a fine view of the valley in both directions. Some, however, have regarded these embankments as land-slides.

“There are over 70 gateways in the embankments, having a width of from 10 to 15 feet. These could not all have been for ingress and egress. I noticed, during a visit to the place in the summer of 1866, that some of them faced the precipitous ravines with made earth thrown out. These appeared to be intended for outposts for sharp-



F. Biddle, Photo.

PLATE XVI.—Gateway in Old Fort, at Station 135.

Opp. p. 64.

shooters. By some they are regarded to have been places for block-houses or bastions composed of timber. The walls are not accompanied by a ditch, but within the work there are not less than twenty-four reservoirs, which, in connection with the springs, would supply sufficient water for any number of persons that might be besieged by an invader.

"At numerous points are found large quantities of water worn stones, which after an incredible amount of labor, have been carried from the river below. Near the exterior of the eastern wall of the north division, are two large mounds, from which start off two parallel walls that continue for a distance of 1,350 feet, when they suddenly come together, inclosing another mound at the most eastern extremity. These walls are now, owing to the plow, almost entirely obliterated. They are shown in supplementary plan. Mr. Isaac Peacock, for many years surveyor of Warren county, while making a survey of this fort, discovered a cave in the hill-side. This was duly noted at the time in his fort notes; but searching for these notes, in order to place them in the hands of the writer, they were nowhere to be found.

"In order to appreciate the most interesting remains of antiquity which this country affords, and to gain a fair understanding of it, it is necessary to see and examine it in person."

REFERENCE: H. A. SHEPPARD, "ANTIQUITIES OF OHIO."
(Page 22.)

"Fort Ancient, the most remarkable of the defensive works of the mound-builders in Ohio, is in Washington township, Warren county, Ohio, seven miles due east from Lebanon. It is not known when or by whom it was first described. Atwater gives a plan and description of it in his memoir in the first volume of the 'Archæologia-Americana.' Both plan and description were taken from one of the numbers of the 'Portfolio,' for the year 1809. Squier and Davis give a plan and description of it in their

work on the 'Ancient Monuments of the Mississippi Valley.' Their plan, as they explicitly state, is 'from a faithful survey made by Prof. Locke, of Cincinnati, and published by him, amongst the papers of the American Association of Geologists and Naturalists, in 1843.'

"This work consists of two grand divisions, or properly speaking, two forts, connected by two nearly parallel lines of embankments, skirting a narrow ridge, and forming a passage, which is defended by two large mounds and a cross embankment.

"It occupies a terrace on the left bank of the Little Miami river, and about 230 feet above its waters. 'The place,' says Professor Locke, 'is naturally a strong one, being a peninsula defended by two ravines which, originating on the east side near to each other, diverging and sweeping around, enter the Miami, the one above, and the other below the work. The Miami itself, with its precipitous bank of 200 feet, defends the western side. The ravines are occupied by small streams.' Quite around the peninsula, on the very verge of the ravines, is the embankment. This embankment is about five miles in length, and varies from five to twenty feet, with an average height of between nine and ten feet. The earth for its construction was taken from convenient pits, which are still quite deep, or filled with mud and water. Professor Locke estimated the number of cubic yards of excavation at 628,800. At numerous points in the line of embankment, and where from position they would yield the most effective support, are large quantities of stones. These are water-worn, and seem, for the most part, to have been taken from the river. 'The work approaches no-where,' says Professor Locke, 'within many feet of the river, but its embankment is, in several places, carried down into ravines from 50 to 100 feet deep, and at an angle of 30 degrees, crossing streamlets at the bottom, which, by showers, must often swell to a powerful torrent. But in all instances the embankment may be traced to within three to eight feet of the stream.' The area of this inclosure is a little more than 100 acres.

"The variation in the height of the wall was evidently designed. 'Whenever the inclination of the exterior slope

renders the work more accessible,' says L. M. Hosea, Esq., in an article in the 'Cincinnati Quarterly Journal of Science' for October, 1874, 'the walls are higher and stronger, and are correspondingly less so, when a precipitous declivity renders a strong defense unnecessary.' Thus, where it crosses the neck of the fortified terrace, at its junction with the main plateau, at a point easily accessible, it is more elevated than elsewhere. At this point also, the ditch is exterior to the work, and still exhibits a depression of three or four feet, and twenty feet in width.

"Another artificial ditch, the object of which is not apparent, extends from a point about 100 feet in front of the wall at this part, in a direction parallel to it, for three or four hundred feet, until merged in the great ravine separating the fortified terrace from the main-land on the south-east. At other points there is a ditch upon the inside, caused, apparently, by excavating earth for the wall, the precipitous sides of the terrace forming an ample protection against assault.

"These excavations are frequently so considerable, as to suggest special design in their construction. The utility of such reservoirs is so obvious, we may easily suppose that they were contemplated by the builders for storing water to the use of those within the work. To these, however, must be attributed many of the so-called gateways, where the overflow of water has washed away portions of the wall, and formed deep gorges extending far into the interior, and draining it into the larger ravines outside. 'The terrace inclosed by the main portion of the work, adjacent to the general plateau, is now cleared and under cultivation; so that upon entering the fort upon the Chillicothe pike from the west, on an imposing parapet, nearly 25 feet high, and forming part of the eastern wall, stands in plain view, about a quarter of a mile distant, boldly outlined against the sky.* A few large trees, survivors of the original forest, tower aloft, like huge sentinels, standing upon the summit of the embankment, and form conspicuous objects to the view from points several miles eastward.'

"The wall is here and elsewhere pierced by numerous

openings or breaks of half its depth, one or two hundred feet apart. Through one of these, which probably formed the main eastern entrance, the Chillicothe road emerges from the fort, and passes between two circular mounds situated just without. A shaft, sunk 12 feet to the bottom of one of these, showed the mound to consist of a homogeneous loam, much compacted, and exhibiting the mottled appearance caused by heaping together earth from different localities. The only remains discovered were minute fragments of charred wood distributed through the mound, and, near the surface, a few bones of an ox, somewhat decayed, but evidently an intrusive burial, probably by the later Indians who occupied the fortification. The other mounds, now almost obliterated by cultivation, stand within this portion of the work. An examination of these showed them to be places where long-continued fires were had, but for what purpose was not evident, as no remains of pottery or other manufactures were discovered in the vicinity. The earth was burned to a considerable depth, and covered by debris of burnt rock in great quantities."

"From the two exterior mounds mentioned by Mr. Hosea, start off two parallel walls, that continue for a distance of about 1350 feet, when they diverge suddenly, but soon come together again around a small mound. These walls have been obliterated for the most part, except where division fences cross and protect them from the plow. They were almost identical in all their dimensions with the parallels attached to some of the ancient works in the Scioto valley. Mr. Hosea made an examination of the space between them, and was rewarded, as he states, "by the discovery of a well-laid pavement of flat, river-worn stones, eighteen inches to three feet beneath the present surface, whose width could not be determined by the limited means at command, but it is traced for some distance in its length, and no doubt extends over the entire space between the fort and the sacrificial mound."

"Upon the steep slope of the hill, at the point where it approaches nearest to the river, there are three parallel



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PLATE XVII.—Outside Slope of Embankment, Old Fort, West Side, near Stations 286 and 287.

Opp. p. 68.

terraces, now covered with a dense and almost impenetrable undergrowth."

Fort Ancient is also mentioned in Howe's "Historical Collections of Ohio," pages 503-505; also in the "Western Gazetteer," page 292. Mr. E. A. Allen, in his excellent work of several volumes entitled "History of Civilization," Vol. I, page 375, mentions Fort Ancient at length. He goes over nearly the same ground that Prof. Locke, Squier and Davis, and others have traversed, and we will quote only that which he says which differs from previous citations. In speaking of the gateways, Mr. Allen says: "Considerable discussion has ensued as to the origin and use of these numerous gateways. Mr. Squier thinks these openings were occupied by timber-work in the nature of block-houses, which have long since decayed. Others, however, think that the wall was originally entire, except in a few instances, and that the breaks now apparent were formed by natural causes, such as water gathered in pools, and muskrats burrowing through the walls; and we are told that such an opening was seen forming in the year 1847. No regular ditch exists inside these walls, the material apparently being obtained from numerous dug holes."

Mr. Allen thinks that the resemblance to North and South America is purely accidental, a conclusion to which every sensible observer will come. He also thinks that Mr. Stephen D. Peet's theory that Fort Ancient was designed to represent a serpent is entirely conjectural. Mr. Allen further says, in relation to the walls across the isthmus: "It has been thought to have been the means of defending one part of the work should an enemy gain entrance to the other."

He thinks they could not enter the small fort on account of the W-shaped embankments across the isthmus. Mr. Allen is considerably in error about the length of the embankment, stating that it is fully five miles long, whereas the actual figures are 18,712.2 feet, or $3\frac{359}{660}$ miles. His suggestion that for most of this distance the grading of the walls resembles the heavy grading of a railroad track, is

very good. Another remark of his is pre-eminently true: "Only one who has personally examined the walls can realize the amount of labor they represent for a people destitute of metal tools and beasts of burden, and other facilities to construct it."

"Now, what was the object of this work? We think it was not simply a fort, but rather a fortified village. That it must have required the work of a numerous body of people is undoubted, and if they lived elsewhere, where are the works denoting such fact?"

He says of Mr. Hosea's description after quoting it: "Thus imagination suggests, and enthusiasm paints the scene; but from positive knowledge we can neither affirm nor deny its truth."

REFERENCE: NADAILLAC. (Page 92.)

This learned Frenchman has written an able book on American antiquities, and mentions Fort Ancient very briefly, but adds nothing new. His description is no more than a compendium of the views and opinions of those who have previously written upon the subject.

Prof. John T. Short, in his "North Americans of Antiquity," says a few words which may be appropriately reviewed. After giving the dimensions of the fort, he says: "None of the mounds contained in the inclosure have yielded any relics of special interest." Our explorations this summer confirm this statement. He thinks, as does Judge M. F. Force, of Cincinnati, that 1,000 years would cover the period since Fort Ancient has been erected. In conclusion, he adds: "Fort Ancient, which would have held a garrison of 60,000 men, with their families and provisions, was one of a line of fortifications which extended across this state, and served to check the incursions of the savages of the North in their descent on the Mound-builders' country."

We now take up Locke's account, published by Squier and Davis, in 1847, in the first volume of the "Smithsonian Reports"—"Monuments of the Mississippi Valley"—page 19.

SQUIER AND DAVIS ON FORT ANCIENT.

Prof. Locke's Survey.

“ One of the most extensive, if not the most extensive work of this class in the entire west, occurs on the banks of the Little Miami river, about 35 miles north-east from Cincinnati, in Warren county, Ohio. It has not far from four miles of embankment, for the most part very heavy, rising at the most accessible points to the height of 18 and 20 feet. The accompanying map is from a faithful survey made by Prof. Locke, of Cincinnati, and published by him amongst the papers of the American Association of Geologists and Naturalists, in 1843. One or two slight additions have been made to his map, to indicate features which may be of some importance in a consideration of the work and its character.

“ The description of Prof. Locke accompanying the map, though brief, and written with a view to certain geological questions, may not be omitted in this connection :

“ This work occupies a terrace on the left bank of the river, and 230 feet above its waters. The place is naturally a strong one, being a peninsula defended by two ravines, which, originating on the east side near each other, diverging and sweeping around, enter the Miami the one above and the other below the work. The Miami itself, with its precipitous bank of 200 feet, defends the western side. The ravines are occupied by small streams. Quite around this peninsula, on the very verge of the ravines, has been raised an embankment of unusual height and perfection. Meandering around the spurs, and re-entering to pass the heads of the gullies, it is so winding in its course, that it required 196 stations to complete the survey. The whole surface of the work is between four and five miles. The number of cubic yards of excavation may be approximately estimated at 628,800. The embankment stands in many places 20 feet in perpendicular height, and although composed of a tough alluvial clay without stone, except in a few places, its outward slope is from 35 to 43 degrees. This work presents no

continuous ditch, but the earth for its construction has been dug from convenient pits, which are still quite deep, or filled with mud and water. Although I brought over a party of a dozen active young engineers, and we had encamped upon the ground to expedite our labors, we were still two days in completing our survey, which, with good instruments was conducted with all possible accuracy. The work approaches nowhere within many feet of the river, but its embankment is in several places carried down into ravines from 50 to 100 feet deep, and at angles of 30 degrees, crossing a streamlet at the bottom, which by showers must often swell to a powerful torrent. But, in all instances, the embankment may be traced to within three to eight feet of the stream. Hence it appears that although these little streams have cut their channels through 50 to 100 feet of thin, horizontal layers of blue limestone, inter-stratified with indurated clay marl, not more than three feet of that excavation has been done since the construction of the earth-works. If the first portion of the denudation was not more rapid than the last, a period of at least thirty to fifty thousand years would be required for the present point of its progress, but the quantity of material removed from such a ravine is as the square of its depth, which would render the last part of its denudation much slower in vertical descent than the first part. That our streams have not yet reached their ultimate level, a point beyond which they cease to act upon their beds, is evident from the vast quantity of solid material transported annually by our rivers, to be added to the great delta of the Mississippi.

“Finally, I am astonished to see a work simply of earth, after braving the storms of thousands of years, still so entire and so well marked. Several circumstances have contributed to this. The clay of which it is built is not easily penetrated by water; the bank has been and still is mostly covered by a forest of beech trees, which have woven a strong web of their roots over its steep sides, and a fine bed of moss [*Polytrichum*] serves still further to afford protection.

F. Biddle. Photo.

PLATE XVIII.—End of Embankment, Station 230, Old Fort.

Opp. p. 72.



“Upon the steep slope of the hill, at a point where it approaches nearest the river, are distinctly traceable three parallel terraces, which were not represented in the original map, but which are indicated here. It is not impossible that they are natural, and were formed by successive slips or slides of earth, a feature not uncommon at the west. They nevertheless, from their great regularity, appear to be artificial, and are so regarded by most persons. A very fine view of the valley in both directions is commanded by them, though, perhaps, no better than may be obtained from the brow of the hill along which the embankment runs. It has been suggested that they were designed as stations from which to annoy an enemy passing in boats or canoes along the river.

“From a point near the two large mounds on the neck of the peninsula, start off two parallel walls, which continue for about 1,350 feet, when they diverge suddenly, but soon close around a small mound. As this out-work is in cultivated grounds, it has been so much obliterated as to escape ordinary observation, and is not traceable without difficulty.”

Squier and Davis note similarity to parallel walls in the Scioto valley. It is a feature no less worthy of remark in this than in other works of the same class, and one which bears directly upon the question of their design, that at all the more accessible points the defenses are of the greatest solidity and strength. Across the isthmus, connecting this singular strip with the table-land, the wall is nearly double the height that it possesses at those points where the conformation of the ground assisted the builders in securing their position.

“The average height of the embankment is between nine and 10 feet; but at the place mentioned, it is no less than 20. At the spur where the state road ascends the hill, and where the declivity is most gentle, the embankment is also increased in height and solidity, being, at this time, no less than 14 feet high by 60 feet base. There are over 70 gateways or interruptions in the embankment at irregular intervals along its line. For reasons heretofore given,

it is difficult to believe that they were all designed as places of ingress or egress. We can only account for their number upon the hypothesis that they are places once occupied by block-houses or bastions, composed of timber, and which have long since decayed. These openings appear to have been originally 10 to 15 feet in width. This work, it will be seen, consists of two grand divisions, the passage between which is long and narrow. Across this neck is carried a wall of the ordinary dimensions, as if to prevent further progress of an enemy, in the event of either of the principal divisions being carried, a feature which, while it goes to establish the military origin of the work, at the same time evinces the skill and foresight of the builders.

“This foresight is further shown in so managing the excavations necessary for the erection of the walls, as to form large and numerous reservoirs; sufficient in connection with the springs originating within the work, to supply with water any population which might here make a final stand before an invader. Even in the absence of these sources, surrounded as the work is on every hand by streams, it would be easy in face of the most formidable investment, to procure an adequate supply.

“At numerous points in the line of the embankment, and where from position they would yield the most effective support, are found large quantities of stones. These are water-worn, and seem, for the most part, to have been taken from the river. If so, an incredible amount of labor has been expended in transporting them to the places which they now occupy—especially will it appear incredible when we reflect that all of them were doubtless transported by human hands. A review of this magnificent monument can not fail to impress us with admiration for the skill which selected, and the industry which secured this position. Under a military system, which we feel warranted in ascribing to the people by whom this work was constructed, it must have been impregnable. In every point of view, it is certainly one of the most interesting remains of antiquity which the continent affords.”

Such are the conclusions of Prof. Locke, and Squier and Davis, respecting the structure and the design of Fort An-

cient. It is no exaggeration, still less a misrepresentation, to say that the noble work of these men has been an unfailing source of information to the greater number of later writers. Squier and Davis were the pioneers in the scientific study of the archæology of the Ohio valley. We have no intention of sitting in judgment on the work of others; but we here wish to enter an emphatic protest against the mere repetition of the measurements, descriptions, and opinions of the earlier investigators, by later writers who, in too many instances, have scarcely visited the prehistoric scenes about which they so copiously pour out their thoughts. In this way, and by such methods, let us assure ourselves, this splendid field for study, so rich in promise, so fruitful in every research that is made, will hold its secrets as firmly and securely as did those mounds and earth-works 100 years ago. Let us persuade ourselves, once for all, that it is only by personal examination, by patient investigation, by surveys, excavations, in short, by honest, hard labor in the field itself, that we shall ever approach the solution of the problems touching prehistoric man and his works here in our North American continent.

Squier and Davis's survey of Fort Ancient approaches in point of accuracy the one which has been made this year, and is more accurate in some respects than any which preceded it. It may be truthfully said, that Caleb Atwater was one of the first men of our country to awaken an interest in American archæology. He was followed by Squier and Davis, who supplemented his work. I have carefully examined Atwater's map of Fort Ancient, and, while it is quite rude and rough, it is, nevertheless, the only one which marks correctly the ravines, and which has the bend in the road made up stream, or toward the north; all the others have the road turned toward the south, and have the ravines marked as creeks of some considerable size, whereas, in point of fact, there is hardly a drop of water in the major part of them during nine months of the year, and in the very largest there is little or no water throughout the summer. There is but one living spring now to be found within the walls; and even in winter,

when there was considerable snow which was beginning to melt, I have noticed but little water traversing these gullies.

The "American Antiquarian" has done a substantial work in promoting the archæology of our country, and its editor, Mr. Stephen D. Peet, deserves due praise for the industry which his magazine displays, and for the excellent articles he publishes. We must beg to differ from him as to his conclusions respecting Fort Ancient. In September, 1877, Mr. Peet visited many of the earth-works of Ohio, and, among others, this, the greatest of all. In the April number of the "Antiquarian," he published an article on the subject. Others appeared in the same periodical in 1883 and 1888. In these Mr. Peet presents his views as to the structure and the object of the fort. We quote from them as follows :

"We turn now to the mound-builders' works. The same system of erecting military inclosures, and connecting them by lookout stations, seems to have prevailed among them which exists among other nations of Indians.

"One of the most marked illustrations of it is given in connection with the works at Fort Ancient. Here we discover an inclosure capable of settlement, the whole being nearly four and a half [only about three and a half] miles in extent, and the area of each part of the inclosure being in the neighborhood of 80 acres. We see also an out-work, consisting of a covered way which runs toward the east. The out-work is distinguished by one feature—at the end of the covered way is an observatory mound. The supposition is, that this observatory was the place where the watchman stood, that he might give the alarm when the enemy came. Communication might be cut off, and the smaller walls were constructed so as to give cover to the sentinels, and keep up communication. The country about the inclosure, and especially that to the east, is open prairie, and has no natural defense, and a wall would only be the one defense. This wall is 1,350 feet in length. The height of these walls is not very great, since the cultivation of the soil has much lowered it, but high mounds



NEB

PLATE XIX

C. J. strong, Photo.

PLATE XIX.—Double Curve in Embankment on West Side of W. d. l. l. e. Fort near the Great Gateway—Stations 288 to 295.

Opp. p. 76.

are found between the inclosure and the covered way. . . . The inclosure itself is a remarkably well adapted work for defense. In the first place, its situation is on top of a promontory defended by two ravines, which sweep round it on either side, forming a precipitous bank some 200 feet high; the ravines are occupied by small streams. The Miami river, close by, runs far below on the left side. The wall of the fort is built on the verge of the bluff, overlooking the ravines, and follows around and re-enters to pass the heads. The wall is of itself very circuitous. . . . The average height of the embankment is between eight and nine feet, and in places is not less than 20 feet. At the place where the state road ascends the hill, and where the decline is most gentle, the embankment is 14 feet high, and 60 feet base. . . . The neck and sides have been well formed and clean cut, giving the whole structure an appearance of great finish and much skill."

As regards the design of Fort Ancient, Mr. Peet holds an opinion somewhat peculiar to himself, which may be given in his own language:

"The author thinks that he has recognized, in the shape of the walls, and especially in the walls that surround the smaller inclosure, the form of a serpent. These walls are certainly serpentine in their course, and are so conformed to the roll of the land, that their form gives rise to the conception. This may be purely accidental, and not intended to embody the serpent symbol, but it is remarkable that the resemblance should have struck the eye plainly at the first visit."

In the "Antiquarian" for 1888, Mr. Peet writes still further respecting the serpent effigy:

"It is stated by Mr. W. H. Holmes that the Great Serpent in Adams county (O.), is built on a ridge which, in its general contour, shape of the cliff, and the appearance of the cliff from below, bears a striking resemblance to a massive serpent. We imagined that the same might be true at Fort Ancient, and hence our second visit. It was proven to our satisfaction, that the same superstition was embodied here. The contour of the ground, shape of the

bluffs and the course of the streams, have all peculiar serpentine lines, and would easily suggest the idea of serpent divinities haunting the scene. The resemblance of the bluff of the river to massive serpents, at least, was recognized, and one reason for the erection of the walls in the shape of the serpent was proven."

His conclusion appears to be that this earth-work served a double purpose, viz., first, for defense, and second, for worship. In short, it was intended to be a serpent fortification.

Such is the published opinion of Mr. Peet. That serpent worship was once of universal prevalence can not be denied. There was not a nation or people where it was not found. It was practiced in India, China, Africa, Ireland, Italy, in short, all over the whole earth, in America as well as in Europe. Our own country attests its presence in some of the ancient remains of the aboriginal inhabitants. In Mexico, the serpent is found in the rude pictures of that strange people, the Aztecs, entwined with their most sacred symbols. The savage of Louisiana, a few centuries ago, tattooed the serpent and the sun, his religious symbols, on his skin. Most readers are acquainted with the Serpent mound in Adams county, Ohio, and the Opossum (commonly called the "Alligator") mound in Licking county.

While all this is true, and while we might have no difficulty in accepting the opinion that the same people built the effigy mounds, the tumuli, and Fort Ancient, we dissent from the view which regards the latter as a serpent structure.

The true explanation, in fact, the only reasonable explanation, as we think, for the twisting, circuitous course of the embankments at Fort Ancient is simply this—the natural configuration of the site. The walls follow the ravines and river bluff, and hence are very tortuous. We further think that this site was chosen by the aborigines mainly, perhaps solely, because of these natural advantages. Nature had already done much to fit up a site for a fortification. What the builders of the fort did, was to

strengthen the site and render it as nearly impregnable as possible.

Besides, Mr. Peet's theory will not explain the existence of the extensive terraces; and any view which omits these is defective.

Prof. Cyrus Thomas has written an excellent article for "Science," Vol. VIII, December 10, 1886. We give here his article entire with the exception of one paragraph.

Prof. Thomas's description of the fortification is quite accurate, but he is in error as to one thing; he says Mr. Locke's estimate as to the amount of earth in the embankment is a mistake. He figures it at 154,000 cubic yards of earth. Prof. Locke falls short of the true amount, and Prof. Thomas makes it still smaller. Both these gentlemen seem to forget that the wall on the ravine side is carried down 30, 40, and some places 50 feet from the top. In some places, one can plainly see that from 50 feet up the angle is very steep, being the fort wall, while from that point to the bottom the angle is much less, because it is the natural slope. When the structure was built, the earth was thrown over and down into these ravines, to make the ascent as steep as possible. We can easily trace the line of division where the artificial earth ends and the natural side of the ravine begins. In some cases, this line is 40 feet from the summit of the embankment.

This would give the embankment an average height of 31 or 32 feet, and a breadth of 69 feet. The length is one mile less than that stated by Prof. Thomas.

Thus we would have a few hundred more cubic yards of earth than Prof. Locke states, and many thousands more than is given in Prof. Thomas's statement.

This estimate is made after very careful consideration, and is surely not far from the correct figures.

We now take up Prof. Thomas's article:

"Having recently, in company with Messrs. W. H. Holmes and Charles M. Smith, visited some of the more noted ancient works of Ohio, among them the one mentioned above, I have concluded that a few words in regard

to its present condition might be of interest to general readers, as well as archæologists.

“As remarked by Squier and Davis, this is ‘one of the most extensive, if not the most extensive work of this kind in the entire west.’ It is also one of the best preserved, the main portion having suffered but little from the plow; the surrounding wall being uninjured save at the points where the turnpike cuts through it, and at a few places where ravines have been recently formed. As earthen walls change but little so long as they are covered with vegetation, it is more than probable that we see this great structure (with the exceptions hereafter noted), as it was when abandoned by those last occupying and using it. For example, the wall at D (Squier and Davis’s figure), in the north-eastern corner, although in an open field, shows no sign of material wearing; the height being now a little over 19 feet, and width at the base, 67 feet—almost exactly the measurements given by Atwater. Growing on the top are some large trees, whose roots are not at all exposed. With the exception of a short stretch at the point mentioned, the wall throughout is still in the unbroken forest.

“Evidences of wearing are observable at some of the ravines it crosses, and a few of the smaller gullies appear to have been worn since the wall was built (a fact also mentioned by Atwater), though, in most cases, the adaptation of the wall to the slopes, shows that these existed when it was thrown up. Prof. Locke states, that ‘the embankment is, in several places, carried down into ravines from 50 to 100 feet deep, at an angle of 30 degrees, *crossing a streamlet at the bottom*, which, by showers, must often swell to a powerful torrent. But, in all instances, the embankment may be traced to within three to eight feet of the stream.’ Although our visit was during an unusually dry season, when the ravines contained no water, the indications observed did not bear out what seems to be implied by Prof. Locke’s language—that the wall originally crossed the ravines. On the contrary, they appear to show that the wall stopped on the sides at the points reached by the streamlets in time of highest water. It is



C. J. Strong, Photo.

PLATE XX.—West Side of Middle Fort, overlooking the Valley.

Opp. p. 80.

true, that at some points it has been broken through by the pressure of water accumulated behind it, but, in all these cases, it is apparent that the ravines have been formed since the wall was built. At only one point did we observe a break made since Prof. Locke's survey. This is through the long, curved stretch, directly east from where the so-called 'two large mounds' are represented on the plat. If these ravines were defended, as is quite probable, it must have been by some other means than a wall of earth, which could not have withstood the pressure through a single rainy season.

"Although the wall is chiefly built of earth (composed largely, in most places, of clay) gathered from the adjacent surface, and from the interior ditch where it exists, it is partially underlaid, at numerous points, with stones, which, in some cases, were laid up loosely. This was noticed at the north-western corner, where the wall had been cut through to make way for the turnpike; and also at the extreme south-eastern corner. At almost every point where a slight cut has been made for a farm road, or other purpose, stones were observed. Mr. George Ridge, who lives near the two mounds, at the north-eastern corner, and who has for years studied the fort, insists that the walls are, to a considerable extent, underlaid with stone. This fact is also mentioned by Squier and Davis, who state that 'they are water-worn, and seem, for the most part, to have been taken from the river.' This is certainly an error, as they are almost entirely of flat pieces of limestone, showing no indications of having been water-worn, such as could be obtained on the surface or immediately below the brow of the hill.

"The two points at the isthmus, or neck, marked on the plat 'two large mounds,' are not 'mounds,' properly so called, but the elevated terminations of the walls on the sides, the opening here being an important gateway. The point at the extreme south-western corner, marked on the plat 'mound,' is only an elevated portion of the wall thrown up to defend an easy approach at this point.

"One of the most interesting facts observed, of which

mention has not been heretofore made, is the different methods adopted of defending the more easy approaches. On the north, these approaches, which are usually narrow, ascending ridges, are generally crossed at the upper terminus by a wall of the ordinary height, the ridge immediately outside being cut down several feet, so as to present a steep slope corresponding with the outside of the wall. This gives the appearance of a terrace on the hill-side a few feet below the wall. On the other hand, where similar ridges form approaches to the south portion, and also, at some places, to the north portion, the defenses are formed by raising the wall considerably above the ordinary height. The isthmus, or point where the opposite walls approach nearest to each other, just north of the two so-called 'two large mounds,' is undefended; though on the right, or east side, the ascent is by no means difficult; the declivity on the west forms a sufficient defense without a wall. The plat at this point is slightly erroneous, as the wall on the west side does not extend quite so far to the north as represented. It is possible that this extension was made theoretically, on the supposition that the wash which is apparent here (shown in Atwater's figure), had carried away the wall. That a small portion of the extreme end was carried down is true, but the ridge on which it runs never crossed the gap. Besides, in the original plan, as given in the 'Portfolio,' the wall is represented as extending up to the so-called wash (which is not a wash, but a small land-slide), and stopping there. The wall never existed along the top at this point.

"The parallel walls starting out from the two mounds near the north-eastern corner, represented in 'Supplemental Plan A,' Squier and Davis's figure, are entirely obliterated, except at the fence crossings, where slight traces of them are visible. The included mound at the east end is still distinctly visible. Mr. Ridge informs us, that he has discovered, at a depth of about 18 inches, a pavement of stone, reaching from wall to wall, and from the mounds eastward over 100 yards. We had an opportunity of inspecting this only at one point, and know nothing further

in regard to it than his statement, which I believe to be trustworthy.

“Some of the problems presented by this work are very difficult to solve, though others can be, in a measure at least, satisfactorily determined without resort to mere speculation.

“That it was built and intended as a work of defense, is so apparent that it is scarcely possible there should be conflicting opinions on this point. The situation chosen, and the character of the work, seem sufficient to put this conclusion beyond all doubt. Yet there are few, if any, satisfactory indications, aside from the character and extent of the work, that any portion of the inclosed area was occupied for any considerable length of time as a village site. That a work of such magnitude and extent could have been hastily cast up for temporary protection, by a savage, or even a semi-civilized people, is incredible. Moreover, there are reasons for believing that the whole fort was not built at one period of time, but was progressive. The southern part was apparently built first, the northern section being a subsequent addition, made possibly because of increase in the population, most likely by the incoming of parties or clans seeking protection.

“On the other hand, the evidence of long-continued occupation, such as are seen about and in other works—as, for example, the Etowah and Messier groups of Georgia, the Cahokia group in Illinois, and several of the works in south-eastern Missouri—are wanting. This is also singularly true of several other noted works in Ohio. The refuse and debris of a populous village, occupying for a long time a comparatively limited area, could not, as is proven by the instances referred to, be entirely dissipated by 60 years of cultivation, even though carried on continuously. The areas forming some of the sites of the mound-builders’ villages of south-eastern Missouri, are yet, after half a century of constant cultivation, a foot or more above the surrounding level. What is the explanation of this singular fact? I can think of but one that seems to be

at all satisfactory, and that is, that these works were built by a populous tribe which was being pressed step by step before a victorious foe.

"The defensive works of Ohio present to me no evidences of great antiquity; indeed, the indications are in the opposite direction; and, in my opinion, we are not warranted in assigning to them an age antedating the latest possible period which we are justified in fixing upon as that at which the Indians first entered this territory. I give herewith a figure, from a sketch by Mr. Holmes, showing that part of the wall which crosses the field near the two mounds at the north-eastern corner, including the part where the turnpike cuts through, marked 'D,' by Squier and Davis.

"There is evidently a very great mistake in Dr. Locke's estimate as to the amount of earth in the embankment. If we take the length of the wall at four and a half miles, the average height at 10 feet, and the average base at thirty-five feet, the volume is about 154,000 cubic yards, or less than one-fourth the amount given by Dr. Locke, his estimate being 628,800 cubic yards. If there is any error in my figures, it is such as will overrun the true amount, rather than fall below it."

In the last few years, the author wrote a few short articles concerning explorations he carried on at Fort Ancient in 1885 and 1887. The following account is taken from the "Antiquarian," volume VIII, 1887.

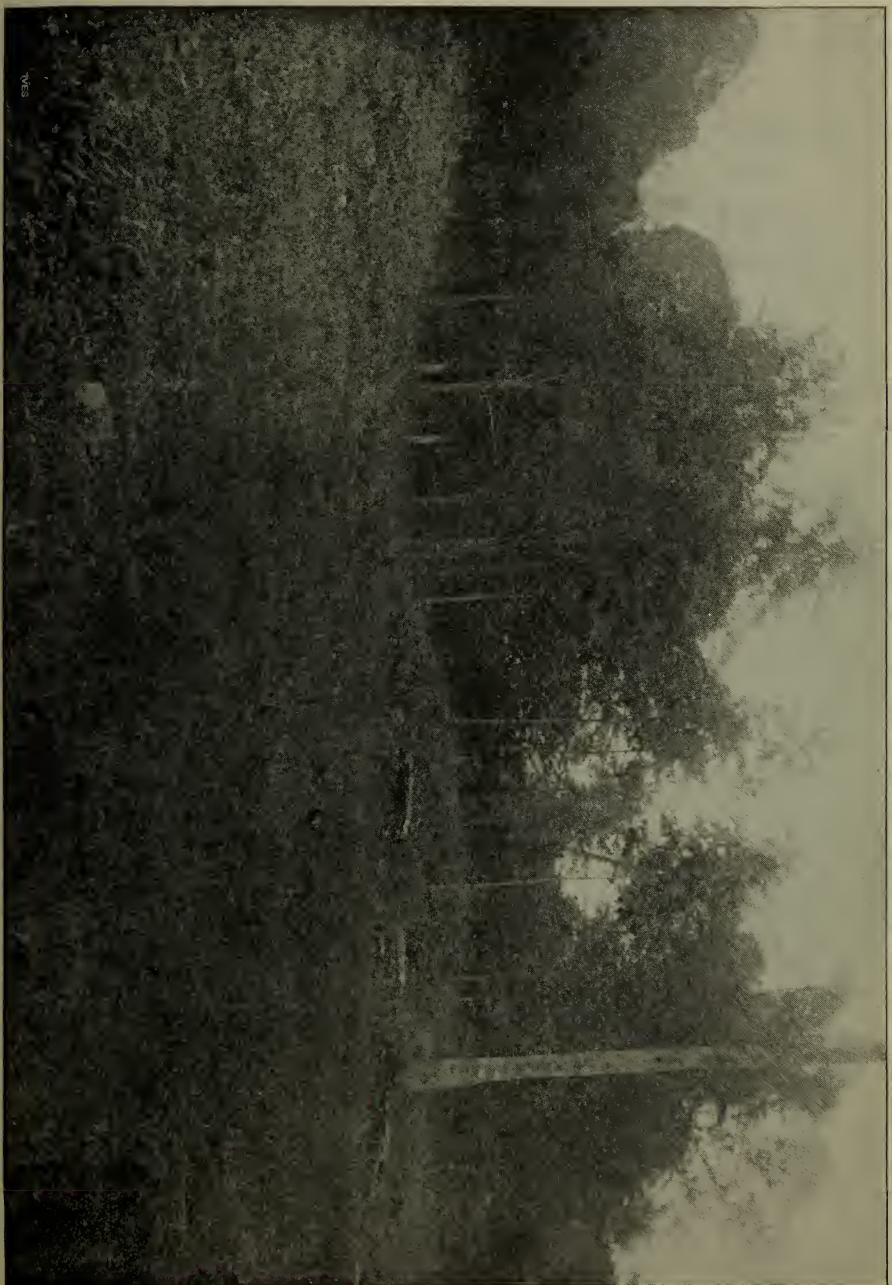
. . . "Upon reaching the Great Gateway, it was proposed that a hole be dug in order to ascertain if there were any graves. . . .

"We sank a shaft six by ten, and five feet deep. We found many human bones. The bones were much decayed, and from their position, we judged no regularity of burial had been observed, but that the bodies had been thrown carelessly into a shallow hole. Skull bones, femurs, arm, and breast bones were all mixed up in a confused mass. We took out upwards of 50 femurs and tibiae, many hundreds of finger bones, ribs, and teeth. But not one *whole* skull or skeleton could we get. There was no

F. Biddle, Photo.

PLATE XXI—Crescent Gateway, looking North. The embankment is one hundred feet beyond the camera.

Opp. p. 81.



limit to the number of bones. I might safely add, that we could have dug up *bushels of them*. Surely the vast number of bones occurring at this point is a proof of some calamity which fell upon the natives so suddenly that they had not time properly to bury their dead. And as these dead are found so near the gateway, is it not conclusive that they fell in battle while trying to defend this point from attack? If not, why are the bodies found here, and why are they not buried in the regular way?

“In the other graves down on the slope of the hills are stones, and in some cases the sites of the graves are marked by a heap of stones. But these bodies have nothing to mark their resting-place. The antiquarian here has nothing by which to guide him, and the striking of these deposits of bones is mere accident. Further on, we dug many little holes, finding but few bones, and those very much decayed.

“Those who have visited the fort within late years, know there is a large cleared spot in the west end of the Old Fort. This open space embraces some 15 acres, half of which was planted in corn, and the rest meadow. The hay on the meadow portion had been cut. It was decided to explore the ground at the edge of the corn-field. The surface was covered with fragments of pottery, bones, arrow-heads, and mussel-shells. Upon the surface, in half an hour's search, we found nearly a hundred pottery fragments, many broken bones, a pestle, arrow-heads, and a few shell beads. But when we dug, it was found that the plow-share had so disturbed the remains, and all relics interred with them, that further search was useless. Nothing of value was found here save a small gorget of black slate. Our guide then took us to the precipice; this is the steepest point on the entire line of hills. The river flows nearly 270 feet below, yet so near the base of the bluff that a stone can be thrown from the top of the embankment into it without difficulty. Warriors stationed at this point would have a splendid command of the river, and could very easily keep canoes from ascending or descending. About half way down the bluff, and covered

with dense undergrowth, there is a narrow strip of level ground. It is not over 20 or 25 feet wide, yet extends around the hill for nearly a quarter of a mile. The formation is not natural. This is covered with river stones, lying in some places four feet deep. Removing these stones from a place 10 x 20 feet, we dug a broad and shallow hole, carefully examining the earth that we removed. We found slightly bent, and lying upon their sides, three skeletons, each having attained an advanced state of decomposition. From the worn teeth of one, we judged he was an old man. . . .

“Close by the cervical vertebræ of the ‘old man’ lay 19 beads of polished shell, all quite large and very finely finished. There were two large spear-heads of yellow flint, and a celt of greenstone by his side. Several copper beads, quite rough, a small grooved ax of sandstone, and a slate ornament or pendant, with two perforations in it, lay directly beneath the head of one of the skeletons. The other, when living, must have been poor in this world’s goods, or else his relatives had nothing to give him, for all he possessed was a paint stone, with circular depressions on each side, a small bit of hematite for paint, and three small spear-heads. We could not tell whether or not these were the only bodies buried at this spot. These were certainly all that were buried with relics, and buried with regularity; but there were bones, small broken ones, scattered a few inches below the surface. Perhaps these were bones of those who fell in battle, and were never covered at all save by a few stones.

“It was now dark, and we returned to the hotel satisfied with our work. Wednesday was one of the hottest days I ever saw. It was 107° right where we were working, and we had to give up before we had all the stones thrown out from one spot, for we feared sun-stroke should we finish. In the afternoon I visited my friend, the farmer, and bought some objects of interest, some of which he had plowed up on the meadow mentioned, and others he had found in the graves. Some of the objects were of slate, banner-stones, drilled tubes, pick-shaped im-

plements, etc. All were of very great interest. One object in particular was a fine specimen of aboriginal work. It was a tablet of gray slate, four by six inches, with eight perforations in the form of a square in the center. The farmer told me that, in early days, before most of the relics had been plowed up, it was no uncommon thing for him to find several hundred arrow-heads inside of a week. He had sold thousands to tourists every summer, and his neighbors living about there had sold nearly as many as he had. There must have been upward of a 100,000 implements found and sold within the last 50 years there at the fort. I know of six large collections, aggregating 40,000 specimens, almost all of which were either begged or bought of farmers living near the fort. I do not mean to exaggerate when I say, that there is no spot in the State of Ohio where there are found as many relics, of such value and perfection, as at this place.

"The day following, we carried on work in the valley, at a 'graveyard,' near the river bank, and unearthed two skeletons and numerous bones, but no relics of value. When the river was high, last spring, it washed out of its banks several skeletons, and seven pieces of pottery (whole). Some doctor from the East bought this pottery. I have looked in vain for any account of it, and could not learn his name. We were in hopes of procuring some pottery, but all our efforts were in vain, and we had to abandon excavations there that evening. As the river had washed out the corn-field quite badly, the owner of the lot requested us not to dig there any more.

"Friday we returned to the hill, and renewed work, although the heat was so intense that out-door labor was dangerous. Having thrown out the balance of the stones, and dug down about a foot, we reached a mass of bones of about one dozen persons. Among these bones, and mixed in the dirt, were some hundreds of small snail shells, perforated. We found a few polished beads, a couple of fine bone awls, and a prong of a deer's antler. In the way of stone implements, we found 14 arrow and

spear-heads, one or two large, rough flint chunks, which may have been used as heads to war-clubs, two axes, four celts, and three small slate ornaments. There were also fragments of a large yellow jar, and bits of hematite ore. It was now high noon, and we returned to dinner. While there, a message summoning me home arrived, and I had suddenly to break off this most interesting work."



C. J. Strong, Photo.

PLATE XXII.—The Lowest Point in the Walls of Fort Ancient, Middle Fort, West Side.

Opp. p. 88.

CHAPTER VI.

GENERAL REMARKS UPON THE STRUCTURE. MOUNDS, DITCHES,
INCIDENTS, CIRCLES, TERRACES.

None of the mounds opened within the walls of the fortification, and in the immediate neighborhood, yield any thing of great importance. Nearly all writers upon Fort Ancient, with the exception of Caleb Atwater and a few others, have referred to the mounds inclosed as probably containing much of value and interest. Atwater predicted that nothing of value would be found in them, and he was right.

The examination of these mounds was carried on in the most careful and scientific manner, and it is not possible that any thing was overlooked.

Our principal finds were made in the stone heaps and graves, and in the valley below. From the contents, we are disposed to conclude that these mounds were not designed for burial purposes, but were used as sites for houses. They are too low to afford any special benefit as observatory posts. However, we can not be certain of their use, for our information touching the designed purpose is very limited, and the clue we have very indistinct.

In a number of places throughout the fortification, in the ends of the gateways there are stones visible. In some places these stones are very numerous. In many gateways there seem to be none whatever. These stones, from their position, indicate their use at one time as a rude wall. It is not to be supposed that this wall was cemented together. Plate III, at page 25, shows some of these stones as they lie in the end of the embankment where the state road has cut through. The roots of a small tree have displaced them somewhat, but most of them retain their original position. In the Great Gateway the stone-work seems to have constituted a large portion of the fortification. The

ground is strewn with hundreds of limestones, and, by thrusting an iron rod into the fort wall the stones can be felt at a slight depth below the outer surface.

Plate XXIII, at page 92, shows a large washout in the embankment near station 358. Stones will be seen in the illustration lying along the slope of the embankment. These were once piled up regularly, and formed a wall three feet high. By digging into the embankment you can uncover portions of the wall that has not yet fallen, and which stands as it was once erected, about three feet in height.

In this washout the stone wall seems to have been held together by a rough sort of cement. This, at first glance, seems artificial; but, upon examination, one finds that the coating on these limestones is *travertine*, and due entirely to *natural causes*—atmospheric agencies.

Along the river-side there are many of these limestones, identical with those found in the fort walls. They frequently have a heavy coating resembling a cement, a crust which forms around them, and which is easily broken and scaled off. This coating is caused by carbonated water flowing over the stones, and dissolving a portion of them. This coating is deposited when evaporation takes place. If we thrust an iron rod into the mounds about the Great Gateway, we almost invariably find stone. It is almost impossible, in fact, to find a spot in the fortification where there is no stone. The conclusion appears to be justified, by the examination made, that the builders of the fort used stone throughout the entire length of the walls, save, it may be, where they were very low; and that the embankments have what we might name a *stone backbone*.

The entire Little Miami valley above the locality of Fort Ancient, beginning far up the stream at Cedarville Cliffs, in Greene county, and extending down to its junction with the Ohio river, might be said to be one vast cemetery. We find mounds all along the hills that line the river on each side. Numerous village sites occur as we descend, and here and there we find, on some plateau, a circle or a fortification.

At the cliffs of the Miami, there is a large mound, 31 feet in height; and a small inclosure, with a number of gateways, on Massie's creek. Coming further down the river, we encounter, in the neighborhood of Xenia, a number of mounds, and one large tumulus, inclosed by a circular embankment.

Down the river further, at Alpha, we find a number of small mounds on the hill-tops bordering on the stream. At Spring Valley there is a mound inclosed in a circle. This was opened about ten years ago, and many skeletons and interesting relics found. At Waynesville there is a small cemetery on the east bank of the river, where some 45 individuals have been dug out at various times. Below Waynesville we find several mounds, two large village sites, etc. At Oregonia (formerly called Freeport), there are several mounds and two large village sites. These latter have been productive of great quantities of bones, shells, beads, etc. Passing Fort Ancient, we come to Mill Grove, where the hills are in places covered with many stone graves, and where there are a number of small mounds. At Morrow, we are told, skeletons have been found, and at South Lebanon there is a fort, square inclosure, circle, and small mound. The mound was opened in 1877, and yielded many skeletons, and some very large and beautiful copper axes. There were nine of these axes found; they weighed about three pounds each, and were made of the Lake Superior copper, which was beaten out in the cold state; they are now in New York city.

At King's Mills several skeletons have been found, and at Foster's Crossing there is one mound and a good sized inclosure. We have been given the following description of it: It is on a high hill back from the river, and incloses 12 or 15 acres. The embankment once stood about 10 feet high in the highest place, with an average of six feet. There is some stone in its construction, but not much. In places there appears to have been a hot fire, as the earth is burned to a considerable depth. There are numerous gateways; the embankment now

stands about three feet in height, and has a width of 20 feet.

At points still further down the valley, skeletons have been found. We give as places, Loveland, Batavia, Redbank, and the Ohio bottoms at the junction of the two rivers. At Batavia there is quite a large cemetery and village site. Numerous skeletons have been exhumed, and considerable whole pottery found. The Cincinnati Society of Natural History, and Judge Joseph Cox, have objects from this Batavia cemetery. The place is so very interesting that some large society should take hold, and explore it, as did the Peabody Institute at Madisonville.

To return to Fort Ancient. Directly opposite the structure, on the high hill on the west side of the river, there is a small circular embankment composed entirely of earth. The circle has a moat on the interior. The circle is three feet high and 160 feet in diameter. The width of the embankment composing it is about 10 feet. The depth of the moat is two feet. There are few relics found in the neighborhood of the circle, and no stone in its construction. It overlooks the river on one side, and on the south there is a deep ravine flanking it.

Within the New Fort is a semi-circular, or crescent shaped, embankment. This has been somewhat injured by the state road running through a portion of it. It will be seen in the map, at page 20, as cut into halves by the pike. The height of this crescent is about two feet; the length of it, 269 feet. There is no use assigned to it. The portion north of the pike is covered with a growth of small bushes and trees.

The fort wall, on Mr. Ridge's side, runs comparatively straight. By turning back to page 20, and looking at the map, the reader will see that the portion north of the pike has one or two small turns only. The average height of the embankment on Mr. Ridge's side is 13 or 14 feet. We think there are fewer gateways on his portion than on any other of equal extent. There is a ditch on the inside for the entire extent.



F. Biddle, photo.

PLATE XXIII.—Washout in the Wall West Side of New Fort, Station 363.

We dug into the ditch running out from the mound on Mr. Ridge's side, with the following results:

The part dug was near the large mound in his orchard. At a depth of three feet in the bottom, and resting on undisturbed earth, and covered by the accumulations of years, was the bottom of what had once been a very large clay jar. It seems, from the fragment found, to have been at least a foot in diameter. The upper portion being gone, we could not tell the height. Several other fragments were found in this ditch.

On the south side of the Lebanon and Chillicothe pike, just south of mound 69, there starts another ditch or moat. This we carefully excavated, and found a number of interesting things. It has filled to a depth of three feet. This makes the original depth about four feet. There were fragments of charcoal and some burnt stone in it; that was all. We dug another trench about 100 yards further south, in the same moat, and here took out fragments of pottery, as many as one could hold in two hands. As the excavation was enlarged, more and more pottery pieces were found, but they were well scattered. There were fragments of the bones of a very large animal, presumably those of a buffalo, in the moat, and some flakes of charcoal. There was no burnt earth. A piece of mica, about three inches across, and chips of flint, were also taken from this ditch.

Resting upon the undisturbed earth was a layer of gravel reaching about two feet in width, and six inches thick at thickest part, running out to a feather edge toward each side. We do not know how far it extended along the moat, or why it was placed there. It was put there by the hand of man, as numerous objects, such as referred to above, were found on and in it. The moat here has been filled in by rubbish to the depth of three feet; it is three feet deep now. Its original depth at this point was therefore six feet.

Between stations 417 and 418, there is a place which has either been only slightly excavated, or else filled up again after excavation, as it is only a foot lower than the

bank on either side, and has but a few inches of black soil above the yellow clay. The yellow clay is found at a depth of three feet in the other parts of the moat.

We dug in the "causeway" which leads out from station 5, but found that it was original earth (natural), not filled in, and that the elevation was undoubtedly made use of as a foot-way in and out of the inclosure.

We dug in the moat on each side of this "causeway;" there were only 16 to 20 inches of black, mucky soil, then clay, which had never been disturbed, so we thought. These moats at this point were never very deep, unless the clay has washed in, which is rather improbable. Our excavations, and the results obtained from these moats and ditches, lead to the belief that they were important parts of the great earth-work, and that, like the fort walls, they were once much more extensive than we now find them.

Back of Fort Ancient, on the plateau, and one and a half miles to the south-east, are three good sized mounds. The first one was dug out a year ago, with the following results: A roughly laid stone wall was near the outer edge of the mound, and extended entirely around it. Within this stone wall, and laid with their feet toward the outside, and their heads toward the center, were found 15 skeletons. With these skeletons were some very curious ornaments of bear teeth, with perforations through them. There were 12 of these bear teeth ornaments found. The ornaments have the same curvature on the sides that the tooth has before it is altered, but they are flattened at the edges somewhat, and the point of the tooth, or crown, has been filed off, and the ornament made quite sharp. The teeth that were unworked, save for the perforations, were of the average size of the black bear, and had from two to three holes in each. All these were found with one personage.

There are one or two rather amusing traditions connected with this earth-work, which, by way of variety, may be here introduced. For many years, some of the old farmers in the neighborhood have believed that there

is a treasure buried within the walls of this structure, and a great deal of money has been spent, and valuable time wasted, in vainly searching for it. There is a story current, and, although most foolish and utterly groundless, has gained considerable notoriety, and is believed by many people. This story has been related to me a number of times, and I would not be surprised if some of those who reported it believed it themselves. The story runs as follows:

Long years ago, before the Mexican War, there was an old Indian who came back to Fort Ancient from the Indian Territory, where the Shawnees had been removed. He took up his abode with an old hunter and trapper, and spent all his time during the night in digging in some secret place in the wild ravines. He dug for 12 nights, and at midnight, on the twelfth night, the old trapper being with him, he came upon a treasure. They say the Indian had a wonderfully loud, shrill voice. As soon as he made the discovery, he let out a fearful yell, and the citizens of Fort Ancient, hearing it, arose bright and early the next morning, and went over to the cabin of the trapper, expecting to hear of a terrible tragedy. They found the Indian gone, and two or three little stone jugs, in a broken condition, on the floor. On the interior of these jugs was considerable clay, and in the clay the marks of coins. So this Indian went away very wealthy with the gold he had secured, and the old trapper bought a farm near by, in which he lived the remainder of his days. It is claimed that the old trapper, who had never been known to have one dollar ahead at one time, paid \$3,000 in gold for this farm. Doubtless, there are a number of residents of Fort Ancient to-day who would gladly dig at midnight for 12 nights in succession, if they hoped to find treasure. A number of very large holes have been dug in various parts of the inclosure. One near the pike is 20 feet in depth, and has been blasted down into the solid limestone. These holes have been excavated by treasure seekers.

There is another comical incident connected with this

place. Some years ago there was printed in Cincinnati an account of a wonderful cave lying underneath the fortification. * It was said that it was discovered by an old hunter and trapper. Probably it was the same master-mind who found the gold. He told some of the people in the neighborhood that he had discovered a cave, but enlightened no one as to the exact location. So that when he died the secret was lost with him. This story has gained wide credence, and many people believe it. Many persons coming to the fort expect to see this cave, and explore its mysteries.

Taking advantage of this romantic rumor, the tenant who has charge of Fort Ancient, and who takes delight in guying the gullible, is in the habit of calling the attention of visitors to the cave. There was a man from Kansas lived in the house the tenant occupies some years ago. Fearing a cyclone, he dug a hole in the bank of a ravine near the house. The cave was eight by ten feet. It had been used of late years as a potato cellar, but the tenant thought to make a better place out of it, so he put a nice fence around the cave, put a door in the entrance, and a padlock on the door. He palms it off as the entrance to the cave, and has great fun at the expense of the unsophisticated tourists who come to visit Fort Ancient. Perhaps many family circles have heard the wonderful story of the cave fresh from the lips and colored by the vivid imagination of one who had been initiated into the mysteries of the tenant's potato cellar.

There is a very amusing story in circulation in archaeological circles with reference to a certain gentleman's opinion as to the use to which the Indians put Fort Ancient. It is said he believes that Fort Ancient was built solely for the purpose of capturing buffalo. These massive earth-works, it is alleged, are nothing more than an immense trap to secure game! He supposes that a wooden stockade was erected upon the walls, and that the middle fort, or inclosure between the great gateway and crescent gateway, was the pen into which the game was driven, and that here it was slaughtered. He further conjectures

C. J. Strong, Photo.

PLATE XXIV.—Embankment in New Fort 200 feet south of L. and C. Pike. Length shown here, 420 feet.

Opp. p. 96.



that the S-shaped embankments were crowded with warriors, who shot arrows into the dense herd of animals as they swept by; that others inside shot those found in the middle fort. Thus he has it that all the labor requisite to construct such a massive earth-work received its pay in so many buffalo and deer, according to the luck of the hunters!

Another theory which we heard advanced in a round-about way, and which was credited to a distant "antiquarian," was this:

The terraces were constructed solely for the protection of the Indians from the *mastodons*; that when Fort Ancient was built it was constructed to keep the great elephants which roamed our country from devouring any luckless natives that might happen in the way; that the fort was found to be insufficient to resist the attacks of these powerful animals; so the builders made the terraces. When pursued by these monsters, they fled to the terraces, where they were *safe*, the great creatures being unable to scale the steep hill-sides.

One might go on for pages giving such foolish stories; but this is sufficient. The reader can read and judge for himself the standing of persons who invent such tales.

We have often been asked how the Indians got stone and water up to their earth-work. People have frequently asked, was it not impossible for them to ascend these steep ravines? They did not attempt to carry any loads up the steep declivities. The glaciers have nicely solved this problem. They left enormous beds of gravel at various points on the western or river side of the fort. These gravel heaps had a very gentle descent of only about 20 degrees. The backs or tops of them are as nicely rounded as if artificially formed. It would be no difficult matter for a person accustomed to scaling all sorts of heights as an Indian is to carry up 25 or 30 pounds of stone at one time. We used these descents in going up and down from the fort, it being much shorter than to pass round by way of the pike.

The Miami river, opposite Fort Ancient, must have been full of fish when the Indians occupied the territory, as there are, even at this day, some very fine fish caught annually in its waters.

Fort Ancient is a favorite resort for picnic parties, and for those who are able to spend a summer's day in a delightful and most interesting place. Excursions are frequent from Cincinnati, and residents of Lebanon, the county seat, and of Morrow, annually visit here. To the credit of the sightseers, it must be said, the great majority do no damage to these ruins; but now and then appear those who seem unable to go anywhere, visit any point, without relieving, in some measure, the propensity within them to destroy something; and so they insist on digging into the walls, or in exploring some spot which may promise a find. The owner of Fort Ancient is courteous enough to permit all visitors, without distinction, to go over the entire ground, and inspect it as fully as they may wish; and regard for him, if not for the great structure itself, should be ample guarantee to prevent any defacement. But, unfortunately, this is not the case. Mr. Cowdin has actually been compelled to prohibit entrance into the fort to those who should be the very last to require such discipline—*students*.

TERRACES.

The terraces that are found in the Miami valley have long been under discussion among archaeologists and geologists as regards their origin. These terraces are from 20 to 25 feet wide; they run along the hill-sides with a surprising regularity of level, and have the appearance of structures designed and executed by the aborigines for a purpose.

Just outside the fort, along the side of the fortification next to the river, are two large terraces. There is one on the west side of the river, and there is one far up the river, across from the vineyard hill.

The terrace across the river from the fortification is 137.7 feet above the river low water level.

C. J. Strong, Photo.

PLATE XXV.—View of Interior of Old Fort, looking South. The Cemetery is in this level space. The Walnut Stump, under which lay a Skeleton is in the center.

Opp. p. 98.



The second terrace, at Mr. Ridge's, north of the fort, is 136.6 above low water.

The terrace on Mr. Cowdin's place, just along the fort hill, is 135.2 above low water.

These are very remarkable figures, there being but little more than two feet of difference between the lowest and the highest. This is the more remarkable, when we consider that at one point, where the level is nearly the same, the terraces are nearly two miles distant from each other.

The question at once arises, could they possibly be due to natural causes? Does nature ever observe such regularity of platforms, whether made by geological deposits or land-slides?

No other answer can be made to these queries, save this: that the terraces are *artificial*; that they were built by *men*. We excavated in various parts of them, and our investigations go far to settle the question. We have found in them flint flakes, and a few pottery fragments, several inches below the surface; and, in three cases, scales of flint and pottery fragments, one foot in depth. These facts go far in establishing the human origin of the terraces. Obviously, they were occupied by men; used by them for some definite object; for exactly what, it is difficult to tell.

Atwater says they were used by the Indians in their wars with the whites; and, in marching against a tribe, they would traverse the terrace as far as it extended. It is noteworthy, also, that these terraces are both numerous and extensive. That which is on the west side, overlooking the river, runs for a distance of over a mile. It runs from Mill Grove, on the south, to opposite the railroad station at Fort Ancient, on the north.

At Waynesville, 10 miles up the river, there are a number of clearly defined terraces of undoubted artificial origin along the hill-sides bordering on Caesar's creek.

Attention has been called to these by Mr. Brown, of Waynesville, and others. They are of the same appear-

ance, and in the same kind of soil, as those at Fort Ancient.

The claim that these were made by glacial action, and have no work of man about them, can not be substantiated. It is not possible that water could deposit so regular a line for so long a distance. Moreover, these terraces are not gravel; they are limestone clay: and their formation could not result from glacial action.

The moats or ditches, inside and outside of the embankments, are very interesting. We dug into them at a number of points, to find out how deep the ditch had once been. The following, from my field note-book, may be of interest to the reader.

The moat near station 3 is one of the largest, and was at one time the deepest in the whole fort.

From the mound, on the north side of the pike, there is a long ditch, about a foot and a half in depth at the starting point, which runs to the north-west, and then merges into a hollow. This is artificial, without doubt. We can assign no reason for this ditch, and its use is purely conjectural. It may have been used as a cover for retreat; the natives running through it till they reached the hollow, as it was once deeper than it is now. The hollow into which this ditch runs (the one on the north side of the fort) can be seen in the map on page 20. Down this hollow, some distance from the two mounds, say 500 yards, are numbers of stone graves. Many bones have been found by an old resident of Fort Ancient at this place. There is a small mound on the edge of the ravine on the north side, and also a number of depressions in the hill, which may be due to natural causes, but which are very singular, and are worthy of our consideration. The terrace on the north side of the large ravine just referred to is about one mile in length, and ends abruptly on the north side of it. There is, just opposite the end of this terrace, a peculiar knoll, which may be natural, or artificially rounded, but which, at least, is very singular.

The ditch running north-west from mound No. 68, and described above, was crossed with two parallel



Opp. p. 100.

PLATE XXVI.—Skeleton from a Stone Grave. This body was found in the Cemetery in the Old Fort.

trenches, about three feet in width each. About 18 inches from the surface of the trench, we found a very heavy layer of exceedingly black material, due to the decomposition of vegetable matter. This was just such as may be found in any old ditch which has been filled up by a growth of weeds and grass. Just below this, the dark earth, was a considerably lighter mass, which contained a great many fragments of bones (animal), and one pottery shred. These were scattered through the soil, and were quite numerous, some few showing a trace of fire. The earth, at a depth of four feet, was very black again, and contained much charcoal, and a few pieces of burnt earth. The greatest depth at which we found charcoal and bones was four feet.

The gateways of Fort Ancient are represented in many maps as being of the same size. There are seventy-four of these gateways, and they differ greatly in their dimensions. In some of them, the angle of slope on each side is very acute; in others, the slope is very slight. Some are 30 feet wide at the top, and 10 feet wide at the base, while others may be 20 feet wide at the top, and five at the base. Very few of these gateways are as deep as the original surface of the ground. The lowest point in the gateway is generally two or three feet above the surrounding level. This is due to the washing down of earth from the ends of the embankments in most cases. But it is not at all unlikely that, in one or two instances, there was a small mound thrown up in the gap between the gateways.

In a great many places, there are large quantities of stone between the ends of the walls in the gateway, and these stones lie in a confused mass, or heap, such as would result from the falling down of a rough wall. We think that the stone in the gateway was once used as a wall to hold and strengthen the ends of the embankment.

CHAPTER VII.

EARTH-WORKS SIMILAR TO FORT ANCIENT IN THIS STATE. A
PLEA FOR THE PRESERVATION OF FORT ANCIENT.

There are numbers of structures of earth and stone scattered throughout our state, which bear in many ways a close resemblance to this famous place. All such earth-works are, of course, placed upon the summits of high hills, or on plateaus overlooking river valleys. The earth-works found in the valleys and river bottoms are not classed as defensive (generally), and therefore can not be placed in the same category with Fort Ancient.

Pre-eminent among the structures situated as is this place, and having a wall in many points similar, is Fort Miami. This large earth-work is in the extreme southwestern portion of Ohio, and overlooks the valley of the Great Miami on the west, and that of the Ohio on the south. From this earth-work, the State of Indiana can be plainly seen, as can also that of Kentucky. The hill on which it is placed is 400 feet high. As we have never seen a published account of it, and are not aware that it has ever been surveyed, we took the liberty of christening it Fort Miami. We visited it in June of this year.

The embankment is about the same average size as that of Fort Ancient. It is carried around the brow of the hill, probably the distance of over a mile. The gateways are similar to those at Fort Ancient, and there is a great deal of stone in them. The area inclosed is about 40 acres. The ditch in all places is on the interior of the wall; in some places it reaches a depth of three feet. The average height of the embankment is seven feet; in one or two places it has reached an altitude of 12 feet. The ends of the embankments in some of the gateways show burning to a considerable depth. It seems as if block-



F. Biddle, Photo.

Opp. p. 102.

PLATE XXVII.—Decorated Pottery, Bone Awls, Bone Scrapers, etc., from
a depth of five feet in the Village Site in the Valley.

houses or bastions of wood had been burned down when once protecting the gateway.

The burning penetrates too far into the ground to have resulted from the burning of brush. The burning of heavy timber, such as was practiced by the early settlers of Ohio, would probably have left effects similar to those just adverted to; but we are to remember that this fortification is situated in timber that has never been cleared. Hence, we think the conclusion legitimate, that the traces of fire here so very marked must have been caused by the natives, whether in battle or upon the abandoning of the structure, of course can not now be determined. We took out portions of the earth at various points, and found it as red almost as burned brick, and quite as hard.

The stones in the gateways are large, some of them weighing probably 40 pounds. These are mainly limestone, and were brought from the river valleys below. The embankment is not so massive as that of Fort Ancient.

On a point of land running west from the fort, is a small mound. This has never been explored. There are stone graves on the same hill, and the bodies are found quite near to the surface. The field had been recently plowed, and we observed that, where the stones covering the graves had been displaced by the share, human bones were exposed to view. Some of them were quite large and well preserved; and so we would infer that the interment could not have been of a very ancient date.

Like Fort Ancient, this structure obviously was built for defense.

In Ross county, near Bourneville, above the main stream of Paint creek, there is a large fort of stone, which is mentioned by Squier and Davis, and other writers. The wall is carried around the edge of the hill, as at Fort Ancient, but is both small and low, and composed almost entirely of stones. These are thrown up in utter confusion, and do not in any place reach the height of four feet; in most places less than two. It has been fre-

quently published that this fort is a more or less solid, upright wall. This is erroneous. We spent some time carefully examining and studying it, and observed that the stones are so small they could not be made to stand permanently in a wall without the use of mortar. Few of them weigh five pounds, and most of them probably less than three. In certain sections, the wall could have afforded no protection whatever. It has been asserted that this work is of a similar character with that of Fort Ancient. About the only fact that may properly be said to justify the assertion is that it is placed upon a hill. In respect of magnitude and massiveness, the fort of Spruce Hill bears no comparison with the great fort in Warren county. All the stones used in its embankments would not equal in quantity those of the graves of Fort Ancient. Why writers should rank this insignificant fort with the massive structure which it has been our purpose to explore and describe, passes our comprehension.*

Fort Hill, in Highland county, Ohio, has considerable stone in its construction, and is in a better state of preservation than is Spruce Hill. As this fortification has been frequently described, and its peculiarities are so well known to all antiquaries who have studied the earth-works of the Ohio valley, no extended notice of it seems to be required. It is built according to the same general plan, and doubtless for the same purpose, as similar structures. The stones used in the wall were taken from the old ledges which crop out at the summit of the hill whereon the fort lies, and, in consequence, the material was of easy transportation. Prof. F. W. Putnam has done considerable work on Fort Hill.

*In stating that the stone wall does not stand up, I refer, of course, to the prehistoric. A farmer has built a wall of stone for some distance along the hill, which has, perhaps, been mistaken by some as the original wall; but one can see at a glance that the stone has been taken for some distance from the old embankment to make this wall, and the owner of the land himself tells us that his men built the wall. I have seen printed accounts of a standing wall, and therefore believe the writers thought this one ancient.



C. J. Strong, Photo.

Opp. p. 104.

PLATE XXVIII.—Skull from Stone Grave in the Village Site. This Skull is that of a woman 25 to 27 years of age.

The work which bears a closer comparison with Fort Ancient than any other hitherto mentioned, perhaps, is that which is situated near Glenford, in Perry county, Ohio, not far from the Licking county reservoir. This work has a circuit of nearly two miles of wall, chiefly stone, and is located on a high and precipitous hill. The wall is carried around the edge, and is in all places over three feet in height and very strong. The stones of which it is composed are quite large, and not flat, but irregularly shaped, as if just broken from the ledges, and not water-worn. Originally, they may have been built in the form of a wall, but from their present position we would infer that they were simply thrown up, and not laid with any regularity. In some sections, the elevation is about four feet, and at least 20 wide. It is composed of sandstone, which was gathered up on or near the hill-top on which the structure is located. Boulders and masses of rock that have become detached from points near the summit of the hill, rolled down and lodged against trees. The trees doubtless decayed and fell, but the rock, being supported by the accumulation of vegetable matter, remained in position on the hill-side.

The entire hill presents not a few cases of these boulder lodgments. That which, however, is worthy of special mention is the fact that, in some places near the top of the hill, the rocks fell from the ledge above and descended but a few feet. The builders of the fortification took advantage of this, and ran the wall so as to include these large boulders as a part of the defense. Some of these reach a height of 20 feet, and would form admirable look-out posts or bastions. In other places, the wall is carried to the edge of the precipice, seven or eight feet high, and the ledge of the rock has been used as a wall, the face being eight or nine feet high, and the slope from the rear upward very gradual. An enemy would have found it no easy task to assault such a place. In some instances, there is a cleft in the rock, which may have been effected by the forces at work in the glacial period. These openings are in some places three feet wide, and

lead directly from the outside to the inside of the structure. These passage-ways were doubtless used by the attacking party; and as they would penetrate into the interior of the fort, they would be compelled to pass around a sort of stone mound placed at the entrance to protect the opening. At this point, there is a little room or space shut in on all sides by a wall of rock. When the attacking party had passed one by one into this pen, as we may name it, they were at the mercy of the holders of the stronghold. There are several of these passage-ways, all of which doubtless were used.

This fortification at Glenford contains a vast quantity of stone, and, next to Fort Ancient, is the greatest stone work, in our judgment, in the United States. It has never been surveyed or described in any printed account up to date. (A government survey of it has been made, but it is not out of press as yet.)

There are many other hill-top earth-works in the state such as those near Granville in Licking county, etc. Squier and Davis in their excellent work have given a full account of these, and for further information respecting them we would respectfully refer the reader to their book.

Of the many earth-works in plains and river bottoms, none resemble at all closely Fort Ancient. It is a debatable question whether they were all intended to be works of defense. Those at Newark, Cedar Banks, Circleville, Chillicothe, Portsmouth, Marietta, Zanesville, in short, throughout the Scioto and Muskingum valleys, are important and instructive to the student of antiquities, but they were all probably symbolic, not defensive.

There are indications of a revival of a deep and, let us hope, an abiding interest, awakened among thoughtful people for the preservation of the antiquities of our country, and the restoration of those which through neglect and abuse have already been partially destroyed. It is a hopeful sign, one to gladden the heart of every student of American archæology and lover of ancient things. Even the United States Government appears to be enlisted in this



C. J. Strong, Photo.

PLATE XXIX.—View of the two Mounds just outside the Walls of the New Fort. The parallel walls start between these. The Camera is pointed east; the mounds are 250 feet ahead.



F. Biddle, Photo.

PLATE XXX.—View from Mound No. 69, looking West toward the Walls of Fort Ancient.

worthy cause, for it is reported that the Secretary of the Interior has recently directed the proper persons to repair and protect the ruins of the Casa Grande of Arizona.

A number of scientific societies, likewise, are moving in the same direction. There is one, more especially, that deserves not only an honorable mention, but the thanks of all who are interested in the preservation of the objects and structures left by the ancient Americans, namely, the Peabody Museum of Cambridge, Mass. This institution has secured and will preserve the great Serpent Mound in Adams county, Ohio, and is said to contemplate the purchase of other earth-works in the Ohio valley.

The Serpent Mound has been greatly improved by Prof. Putnam, of this institution. He has inclosed ample grounds with the effigy to form a most attractive park; he has restored the embankment at weak points, has sown grass upon the worn portions, has made walks for the accommodation of the tourists, and has beautified the spot to such an extent that scarcely another like it or comparable with it can be found in the country.

The English people take a sort of national pride in the protection of the ancient remains of the Druids, and of those that perpetuate the memory of the Roman occupation of Britain; the Scotch and the Irish guard with utmost care their ancient cairns: while in Italy and other countries no man is permitted to strike a pick or thrust a shovel into the ground beneath which are the relics of a bygone age without special authority from government. These peoples are concerned for the safety of all that links them with ancient civilizations; they do not believe in snapping the bonds which bind together successive generations of men. We Americans do. Not content with having almost entirely exterminated the natives of this continent; unsatisfied with the tremendous fact that we have violated covenant engagements and treaty pledges with the Indians a hundred times over, we seem to be intent on erasing the last vestige of aboriginal occupation of our land.

While it is true that the native American produced

no real work of art, at least none such as this cultivated age would reckon to be art; while he had no written language, and his life was mainly that of the savage, nevertheless he was a man, and, being such, he is an object of deep interest to every lover of his kind. "I am a man; nothing human is foreign to me," was the noble sentiment of an ancient Roman.

There are two reasons why we appeal for the preservation of Fort Ancient, and all similar works in our country. The first is, because of a deep-rooted sentiment. Every antiquarian, if true to the calling he has chosen, lives largely in the past. His thoughts are with a long-buried people. Every thing relating to them, all they have left behind them, is dear to him, not in themselves, but because of their connection with their makers. The sentiment is rooted in reverence, and reverence is one of the purest and most exalting feelings which can possess the heart. That person and that people are close to the ruin of the worst sort in whom reverence has no place. The second reason is, that it is only by careful and patient investigation into the remains of these dead and almost forgotten races that we may ever hope to arrive at any definite knowledge of their lives. All the light we can hope to shed upon them must come to us through the examination of their works and their skeletons. It is in the interest of science that we *plead* for the preservation of the monuments of the native Americans.

Will not those who have both interest in these things and money likewise, exert themselves for their safety and perpetuity?

Fort Ancient would make a superb park. There are fine springs of water here; there is abundance of shade trees; every thing, in short, that is calculated to make a public resort such as the citizens of a great city like Cincinnati would enjoy. Were there no other attractions the massive embankments would warrant the expenditure of money to fit it for a public park.

Time is slowly dissolving the walls of the fortifica-

F. Biddle, Photo.

PLATE XXXI.—View of Little Miami Valley, from the Embankment at Station 245.



Opp. p. 108.



F. Biddle, Photo.

PLATE XXXII.—Group of Arrow Heads and Knives—found with in the walls of the inclosure.

Opp. p. 109.

tion. Every rain carries away a little earth. The cattle trample the embankment in places, and thus it erodes the more easily. The farmers' plow and drain assist in the work of demolition. If we would preserve this grand structure we must be up and doing. It is but a question of time until Fort Ancient, like most of our aboriginal works, *will be a thing of the past.*

May our plea not be made in vain!

CHAPTER VIII.

CONCLUSIONS DRAWN FROM THIS GREAT FORTIFICATION.

It is not possible that Fort Ancient was designed by the builders for any other purpose than that of defense. Nine out of ten of the intelligent people that visit it come to the same conclusion as to the probable purpose of its erection. It has been often remarked by army engineers, by military men, in fact, by all persons versed in the science of war, that this is certainly a military structure, to be used for warlike purposes.

Those who are considered as the foremost archæologists of this country, who have expressed opinions upon the subject, have, in every case (except one or two), taken this view; *i. e.*, Fort Ancient is an inclosure erected for the protection of a large tribe of aborigines.

The writer has heard Professor Putnam, of Harvard College; Mr. Thomas Wilson, of the Smithsonian Institution; Mr. W. H. Holmes, of the Bureau of Ethnology; Professor Cyrus Thomas, of the Bureau of Ethnology; and many others, express opinions as to the character of this earth-work. They admit that it is a fortified village site, and might have been used in case of a siege.

Mr. Peet, of the Antiquarian, has also come to this conclusion, and has claimed for it a defensive nature, as well as his serpent theory.

After faithfully working about this structure, and carefully weighing all evidence we can obtain concerning the place, we have come to this conclusion:

Fort Ancient is a defensive earth-work, used at times as a refuge by some large tribe of Indians; and at intervals there was a large village situated within its walls.

The fields within the wall, especially in the inclosure of the old fort, are covered with pottery fragments, bones, arrow-heads, flint chips, etc. This is precisely what we



F. Biddle, Photo.

PLATE XXXIII.—Ax, Unfinished Pipes, and Celts—Old Fort—Surface Finds.

Opp. p. 110.



F. Biddle, Photo.

PLATE XXXIV.—Fine Ceremonial Objects, Tubes, and Ornaments—Old Fort and Middle Fort—Surface Finds.

Opp. p. III.

find on every village site. The ground has many burnt stones below the surface. In the woods, in places, we have dug down to a considerable depth, and found evidences of village occupancy, such as masses of ashes, etc.

While this is true, we do not think the village site occupied the interior of the fortification all of the time. Tribes that lived within a radius of 50 miles probably flocked here, in case of an enemy invading their territory. The whole valley, let us say, was inhabited by one tribe from Cedarville to the Ohio. The valley of the Great Miami, only 25 miles distant, was also inhabited by clans of this tribe. At times, all the aborigines in both these river basins may have been here at Fort Ancient. Probably they lived along the river banks in the valley below the fort. Occasionally, they would go up and live inside the structure, or a portion of them may have occupied the structure, while a large body lived in the valley. In case of an invasion by some hostile nation, all would flee to the fortification above.

The great village, situated at Madisonville, which held thousands of Indians, was only 25 miles distant. The great Indian village, Old Chillicothe, above Xenia, was only 30 miles away. (Old Chillicothe was not always a Shawnee town; it was occupied as a town by previous tribes.) The great Indian town, Chillicothe, at Frankfort, where there is indication of a numerous population, was only 40 miles distant, while along the Great Miami river, not far distant, were many small towns. Gathering all these people together, from the towns within 50 miles of the fortification, there could not be many less than 30,000 or 35,000 men, women, and children. Of this number about 8,000 would be able to take part in battle. When looked at from an Indian's point of view, and when we consider that at no time in the history of this country have there been more than 4,000 natives engaged in a single battle (except in Mexico), this army becomes enormous.

Eight thousand men might hold the old fort and the middle fort, but they could not garrison the new fort.

If the builders of this great earth-work were themselves invaders, and if they gained a foothold by expelling those whom they found here, they would be, of course, objects of jealousy and hatred on the part of those expelled. It may not be unsafe to conclude that they constructed this fort for their protection and safety; and that, ever and anon, they had to defend themselves and their home from the attacks of hostile tribes, who sought to recover the grounds they had lost. Hence, we might expect that battles were fought all over this region—battles, the results of which we shall never know.

After as thorough study of the place as we have been able to devote to it, after comparing it with other similar fortifications, our decided conviction is that it possesses nothing of a religious nature; nor was it constructed for a religious purpose. The builders of this work probably cared very little about religion, recognized few religious duties, had no religious ceremonies practiced within the inclosure, with the possible exception of the worship of the sun. It is safe to say that they thought little of the hereafter, and were probably busily engaged in hunting, fishing, and traversing the war path, instead of thinking of things higher and better. If they had any priests, or practiced any mysterious rites, or sacred dances, such as suggested by Mr. Hosea, we know nothing of it, nor have we found the slightest trace of any thing that would indicate more than the ordinary Indian war dance in any part or at any point.

The Serpent Mound and the Opossum effigy represent a class of works that are purely ceremonial or emblematic. This structure, however, and those like it which are found placed upon high hills, exhibit nothing of this character. The works which are effigy in Ohio have but one wall, and could not be used for defense.

The pavement, of which mention has already been made, might be thought by some to indicate that the inhabitants practiced sacred rites upon it.

We venture the opinion that such a conclusion would be inadmissible. We can conceive of but two uses to



F. Biddle, Photo.

Opp. p. 112.

PLATE XXXV.—Front View of Black Slate Ceremonial, from Grave
at Fort Ancient, 1882.



F. Biddle, Photo.

Opp. p. 113.

PLATE XXXVI.—Rear View of Black Slate Ceremonial (Plate XXXV).

which the pavement was put, namely, a place for the war dance and for assembling in council. Some attach great importance to a mystery, and most of us find delight in attributing exalted virtues and a high state of civilization to the prehistoric races; but a cautious man will not allow his mind to take these fancy flights. It is not at all probable that any great ceremonies were enacted in connection with this pavement, nor are we safe in assuming that these people had an order of priesthood beyond the Indian medicine man.

There is no intention to demean or underrate the people who built Fort Ancient, nor do we wish to be misunderstood. The aborigines who constructed it, whether they came from one tribe or many, showed a degree of patience unequalled, we might almost say, by the present inhabitants of America. They have left evidence of the possession of qualities seldom found among savages. They engineered the position of the walls with reference to the most secure places with admirable skill. They toiled with a persistency and assiduity seldom exhibited by others. Think of thousands of men and women toiling on the brow of this high hill with wicker baskets, skins, etc., piling up such an enormous earth-work by mere strength of hand and back. They had no shovels, no picks, no barrows; in fact, no tools at all, such as we use.

Yet they accomplished the work that we, even with all our modern implements, would long face with hesitation before undertaking it.

That the builders of this immense fortification possessed a considerable measure of intelligence, is amply attested by these remains. The selection of the site, the best for the purpose which the valley of the Ohio offers; the skill with which the walls have been carried around the entire inclosure; the care with which weak and exposed points have been strengthened; the lookout mounds (if such some of those were for which no other use can be assigned, unless that of religious ceremonies); the sub-

stantial manner in which they appear to have built their lodges; the knowledge they had of hunting and trapping; above all, the superior brain many of them had, as witnessed by nearly all the skulls that have been exhumed;—all this goes to prove that they were a race much higher in the scale of being than the majority of the tribes and remnants of tribes found in this region by the first whites who pushed their dangerous way into Western Ohio.

We believe these people were in advance of the Shawnees, the Delawares, and others, that occupied the territory in 1787. But we do not think that they had any special order of government; neither had they the use of metal, and certainly they knew nothing of a written language. They used copper in the cold state, and they had a crude system of picture writing as means of communication with those at a distance. We believe they never got beyond this. They worked lead ore (galena) into ornaments, but they never discovered its properties. Lead melts at a lower temperature than any other of the common metals—how they could have used it and never stumbled upon its true value, we can not understand. They also worked hematite as stone.

The carved stones, and tablets with hieroglyphics upon them, found in the Miami valley, are, without doubt, all frauds. Wilmington, Ohio, seems to be a favorite locality for these “historic tablets,” as several have been “found” within the mounds of that region. If the stones were made by one people, we should think there would be some similarity of characters. Strange to say, each one found is different from any previous specimen. This difference is noted in material of which the object is made, as well as in the size and shape of the characters engraved upon them. So far as we are aware, none of these stones have been accepted as genuine by any antiquarian of more than local reputation. The making and circulating of such spurious relics should be prohibited by law, and students of archæology should discourage the buying and selling of relics at fabulous prices. It only tends to increase the demand among “collectors,” and encourages fraud.



F. Biddle, Photo.

PLATE XXXVII.—Copper Plate, Mica, and Celts, from a Mound near Fort Ancient, 1888.

Opp. p. 114.

The wigwam circles in the Old Fort, of which mention has been made in previous pages, the finding of different varieties of pottery, lead us to believe that different tribes have occupied this fortification.

Who they were, and how long they remained in its occupancy, of course we can not say. There seems to have been a general mingling of races throughout the Little Miami valley, but the valley as a whole has not been sufficiently worked for us to say with certainty what tribes were here and how long they stayed. It will take many years to determine this, as the indications are so numerous, and there is such intricate material to be straightened out.

From the general appearance of Fort Ancient (if there is any theorizing to be done), we would say that the Mandans built it; that they occupied the larger lodges, the circles of which we still see in the Old Fort. The similarity between the pottery found here and the pottery from their village site upon the Upper Missouri river, leads us to this conclusion. In the Cincinnati Historical Society museum, there are several pots made by the Mandans of the Upper Missouri, and they are *identical with the Fort Ancient pieces*. What say our fellow-students to this? Mere coincidence?

The question is very important, and should be carefully studied before we come to any definite conclusion. Catlin says that the Mandans had traditions of coming from the Ohio valley, and as Catlin was the first white man to spend any long time with them, what he says carries a great deal of weight.

Possibly more than thirty-five thousand Indians, as stated on a previous page, may have been here at one time. The Mandans may have occupied the Scioto valley as well, and when a large force invaded their territory they would flee to this spot.

We said that the people for fifty miles around may have come to Fort Ancient. In case of the Six Nations invading this country in a large body, there may have double the number stated above gathered here to defend

the fort. But this is not probable; there would hardly be sufficient corn and game on hand to support such a large body of people unless they had sufficient foresight to lay in a good store of provisions.

It is quite probable that the structure was used as a fortified village site, and that there were people living within its walls all the time. Of course there were not enough to command the inclosure, but perhaps enough lived within to keep it in good repair. Messengers could be sent out and a large force collected from neighboring tribes, if needed. There may have been palisades on top of the wall the entire distance around; the walls were then much steeper than now, and from indications we think faced up with stones.

As to the age of Fort Ancient, there seems to be a great diversity of opinion. Some have said the fortification is at least 5,000 years of age, a date, it seems to the writer, about 4,000 years in excess of the truth. Others have given 1,000 years as the age of the work.

In determining the age of this structure several things must be considered: *First*, that the embankment would stand many years before timber would grow upon it; *second*, that it is of a tough, glacial clay, that is not easily affected by erosion; *third*, that after the trees and grass once started growing the annual waste would be very slight.

There are places in the embankment where the wall has been carried across gullies and has since washed out. In other parts gullies, which look very old, have formed where the embankment once lay upon a perfectly level strip of ground. This earth washes so very slowly that several hundred years must be allowed for the formation of some of these ravines.

There are some trees growing upon the walls of the fortification not far from 350 years old. As to there being timber 500 years of age at Fort Ancient, as some have stated, we think there is none that will approach 400 years, and very little that might be safely said to be over 300.

Taking all things into consideration we think that

900 years would be a fair estimate of the age of Fort Ancient; we do not think it to have been built before A. D. 1000, but probably since that date.

Fort Ancient stands pre-eminent among all the aboriginal earth-works in the Mississippi valley. The embankments on the high plateau impress the observer with a sense of their grandeur. Unfortunately we will never know the complete history of this place. It is no exaggeration to say that some of the greatest battles on the continent, battles fought without the modern implements of war, were fought here. Imagine the battle fields of the South 500 years hence—how many evidences of the huge struggles would then exist? If comparatively few bones of those who fell should alone remain at so distant a period, who would be so foolish as to conclude that only a few men were killed? It is safe to say that some centuries have elapsed since tremendous battles were fought at Fort Ancient; nevertheless the proofs still extant of frightful carnage lead us to the conclusion that this was a strategic point, about which the supreme effort was on the one side to capture, on the other to defend.

The sun has risen and set upon this earth-work, it may be, for a thousand years, and, through the long ages to come, the gleam of the luminary will gild its walls with the sheen of its splendor; but there is no luminary that can dispel the darkness that surrounds its history.

One day, while digging in the plateau in the old fort, we took out the skull of a man probably forty years of age. The head was unusually well shaped, the bones were rather thin, and the brain capacity quite large. The shape of the skull would indicate, it seemed to us, mental power above the average Indian.

I thought, as I looked into the sightless sockets—"Oh! that life could be given to this mortal body for a few hours; this tongue, now silent, could become vocal, and answer my questions; how supreme would my satisfaction be!" But, as I pondered, gazing upon the skull, it seemed to assume a horrid grinning, as if mocking at my anxiety, and rejoicing at my ignorance.

I turned to the embankment, for consolation, and stood upon the station zero. But there, too, I was baffled! The darkness, as of midnight, has settled down, and the true history of great Fort Ancient, in all its details, will never be known.

The long and lofty embankments keep their secrets well, and there is no one strong enough to make them divulge.

Here, at the end of our work, we are compelled to admit that, while our explorations shed a great deal of light upon the inclosure, and resulted in many discoveries, they did not give us what we wished for, the answers to the questions:

Who built Fort Ancient?

When was it built?

We can safely say *why* it was built, and *how* it was erected; but that is all.

Did the Mandans have any thing to do with its construction?

No one can answer; Fort Ancient will never tell us; and we must confess that this fortification is a *great, unsolved mystery*.

NOTES ON SURVEY OF FORT ANCIENT.

The initial point is on top of the first embankment of the eastern wall, on the south side of the Lebanon and Chillicothe turnpike; the angles being turned off to the right.

STATIONS.		BEARING.		DIST.	
0 to	1	S	9.30 E	78.6	End * of first wall.
	2	S	5.20 E	41	Center of first opening, or "gateway."
	3	R	12.08	37	Top of second wall. The bearings to Sta. 2 were taken with the needle; the succeeding ones were read by means of a vernier.
4 to	4	R	25.51	116.6	End of second wall.
	5	R	27.08	32.5	Center of second opening.
	6	R	43.05	31	Top of third wall.
	7	R	45.25	156.5	End of third wall.
	8	R	44.25	36	Center of third opening.
10 to	9	R	44.10	26	Top of fourth wall.
	10	R	37.00	101.5	End of fourth wall.
	11	R	21.08	31.8	Center of fourth opening.
	12	R	21.08	18.6	Top of fifth wall.
	13	R	18.05	67	On fifth wall.
14 to	14	R	13.20	44.8	On fifth wall.
	15	R	4.00	38	On fifth wall.
	16	R	27.10	62	On fifth wall; outcurve.
16 to	17	R	33.15	33	On fifth wall.
17 to	18	R	31.19	24	End of fifth wall.
	19	R	35.48	26.6	Center of fifth opening.
	20	R	51.30	22.6	Top of sixth wall.
	21	R	63.35	37.4	End of sixth wall, at edge of ravine.
	22	R	63.00	33	Bottom of ravine.
24 to	23	L	26.10	23	Top of seventh wall.
	24	R	14.08	38	On seventh wall.
	25	L	26.10	85.6	On seventh wall.
	26	L	16.00	21	On seventh wall.
	27	L	5.36	20.7	End of seventh wall.
	28	R	2.40	16.6	Center of seventh opening.
	29	R	9.00	15.8	Top of eighth wall, and beginning of regular curve.

* "End" of wall, means the end of the top portion farthest from the transit; while "top" means that nearest the transit.

The measurements, unless otherwise specified, are always from the next preceding station.

STATIONS.		BEARING.	DIST.	
29 to	30	R 27.35	52	On eighth wall.
	31	R 34.20	31.6	On eighth wall.
	32	R 42.50	34.4	On eighth wall.
	33	R 49.30	31.8	End of eighth wall.
			+17	Center of eighth opening.
	34	R 68.40	31	Top of ninth wall.
	35	R 78.20	55.6	End of ninth wall.
	36	R 85.10	29	Middle of ravine.
	37	R 82.30	46	Top of tenth wall.
37 to	38	R 25.03	53	On tenth wall; beginning of curve.
	39	R 21.00	85.3	On tenth wall.
39 to	40	R 75.35	45.8	On tenth wall.
	41	R 86.15	57.5	End of tenth wall.
	42	R 93.35	16.5	Center of tenth opening.
	43	R 98.20	14.5	Top of eleventh wall.
	44	R 118.00	38	On eleventh wall.
	45	R 138.50	72.8	Top of deep ravine.
45 to	46	R 111.00	78	Bottom of deep ravine.
	47	R 97.30	102	Top of twelfth wall. On both sides of this ravine [from 45 and 47 to 46], the wall extends down the slope to the bottom, in a straight line, as if it had at one time been continuous across.
47 to	48	R 11.50	153	End of twelfth wall.
	49	R 15.50	15	Center of twelfth opening.
	50	R 20.15	16.5	Top of thirteenth wall.
	51	R 35.15	52.2	On thirteenth wall.
	52	R 39.15	20.9	On thirteenth wall; incurve.
	53	R 31.15	23.8	On thirteenth wall; incurve.
53 to	54	L 6.50	45.1	End of thirteenth wall.
	55	R 5.30	17	Center of thirteenth opening.
	56	R 28.20	15.3	Top of fourteenth wall.
	57	R 60.38	57.7	On fourteenth wall; outcurve.
	58	R 57.15	37.2	On fourteenth wall; outcurve.
	59	R 46.40	48	End of fourteenth wall; outcurve.
	60	R 48.00	15.6	Center of fourteenth opening.
	61	R 51.45	16.6	Top of fifteenth wall.
	62	R 68.15	67	On fifteenth wall.
	63	R 75.00	41.9	On fifteenth wall; incurve.
	64	R 74.00	21.1	On fifteenth wall; incurve.
	65	R 69.30	29.8	On fifteenth wall; incurve.
	66	R 54.45	96	End of fifteenth wall.
66 to	67	R 68.00	16.2	Center of fifteenth opening.
	68	R 78.50	15.5	Top of sixteenth wall.
	69	R 101.40	31.9	On sixteenth wall.
	70	R 102.00	19.3	On sixteenth wall; incurve.
	71	R 93.05	24.9	On sixteenth wall; incurve.
	72	R 79.33	34.3	On sixteenth wall; incurve.
	73	R 57.15	78.6	On sixteenth wall; incurve.
	74	R 47.45	36	On sixteenth wall; incurve.
	75	R 38.15	45	On sixteenth wall; incurve.
	76	R 33.42	22	End of sixteenth wall, at top of ravine.
76 to	77	R 23.21	96	Top of seventeenth wall, on opposite side of ravine, at top of slope.
	78	R 15.35	50.3	On seventeenth wall.

STATIONS.	BEARING.	DIST.	
76 to 79	R 19.20	68.4	End of seventeenth wall, on top; out-curve.
80	R 23.04	22.6	End of seventeenth wall, at bottom.
81	R 37.48	64.1*	First end of eighteenth wall, at inside part.
82	R 32.05	25.6	First end of eighteenth wall, at inside part, on top.
83	R 28.25	20.8	Second end of eighteenth wall, on top, on regular line of wall.
83 to 80x		24.3	Measured back in a direct line toward Sta. 80, and distant from that station 33.5† feet. From Sta. 80 to Sta. 80x, is the seventeenth opening. Stas. 81 and 82 are at the end (on bottom and top, respectively) of a spur, which goes in toward center of fort from Sta. 83.
84	R 2.50	64.1	End of eighteenth wall.
85	R 19.25	26.8	Center of eighteenth opening.
86	R 26.25	14.5	Top of nineteenth wall.
87	R 42.25	56	End of nineteenth wall, on top, at edge of ravine.
88	R 51.05	20	End of nineteenth wall, at opening 19, bottom of ravine.
89	R 51.07	24	Top of twentieth wall, on opposite side of ravine, the wall running up on the slope from the bottom.
90	R 47.30	39	On twentieth wall.
91	R 50.30	97.1	End of twentieth wall, on top.
92	R 53.45	33.4	Center of twentieth opening.
93	R 53.15	23.2	Top of twenty-first wall.
94	R 49.20	40.7	End of twenty-first wall.
		+17	Center of twenty-first opening.
94 to 95	R 6.00	34.2	Top of twenty-second wall.
96	R 4.20	37.8	On twenty-second wall.
97	R 20.15	56.3	On twenty-second wall; outcurve.
98	R 31.25	54.1	On twenty-second wall; outcurve.
99	R 34.45	54.8	End of twenty-second wall, on top.
100	R 35.35	18	End of twenty-second wall, at bottom; also, end of the east wall of the "new" or northern portion of the fort.
100 to 101	R 46.45	103	To bottom of so-called "mound;" the initial point of the east wall of the "old" or southern portion of the fort. Only the natural surface exists from Sta. 100 to Sta. 101, there being no indication of artificial deposits. This is not a "mound" at all, but only a heavier wall than those near it.
102	R 33.10	35.5	Top of twenty-third wall ["mound"].
103	R 30.15	18.5	Highest point of twenty-third wall.
103 to 104	L 24.00	48.3	End, on top, of twenty-third wall; in-curve.

* This measure to be used only as a check in drafting, and not to be added in obtaining length of fort wall.

† This measure to be added.

STATIONS.	BEARING.	DIST.	
105	L 37.05	15.4	Center of twenty-third opening.
106	L 50.45	18	Top of twenty-fourth wall.
107	L 89.15	48.8	On twenty-fourth wall.
108	L 96.06	36.5	End of twenty-fourth wall; outcurve.
109	L 95.30	18.2	Center of twenty-fourth opening.
110	L 98.40	51.4	Top of twenty-fifth wall.
111	L 100.40	35.9	On twenty-fifth wall.
111 to 112	L 85.20	77.9	On twenty-fifth wall.
113	L 75.25	94.2	On twenty-fifth wall.
114	L 69.32	45	On twenty-fifth wall; outcurve.
114 to 115	L 30.45	107.6	End of twenty-fifth wall.
116	L 26.50	17.7	Center of twenty-fifth opening.
117	L 25.24	15.9	Top of twenty-sixth wall.
118	L 19.30	45	On twenty-sixth wall.
119	L 11.40	63.7	End of twenty-sixth wall, at ravine.
120	L 8.00	25.1	End of twenty-seventh wall, at ravine, on opposite side.
121	R 2.00	65.7	On twenty-seventh wall.
121 to 122	R 59.55	49	On twenty-seventh wall; outcurve.
123	R 75.45	58	On twenty-seventh wall.
123 to 124	R 88.15	39.1	On twenty-seventh wall; incurve.
125	R 75.45	29.3	On twenty-seventh wall; incurve.
126	R 56.40	28.8	On twenty-seventh wall; incurve.
127	R 19.55	90.5	End of twenty-seventh wall, at edge of ravine.
128	R 14.30	37	Top of twenty-eighth wall, at opposite edge of ravine.
126 to 129		41	End of twenty-eighth wall. The bear- ing could not be obtained, but Sta. 129 is on a line between Stas. 128 and 130.
130	L 4.45	15.2	Center of twenty-eighth opening.
131	R 1.40	19.5	Top of twenty-ninth wall.
132	R 23.20	65.4	On twenty-ninth wall.
133	R 38.35	43.4	On twenty-ninth wall; incurve.
134	R 49.15	33	On twenty-ninth wall.
135	R 52.25	43.2	On twenty-ninth wall; incurve.
136	R 64.48	45.9	On twenty-ninth wall.
137	R 66.45	32.8	On twenty-ninth wall; incurve.
138	R 62.00	38.3	End of twenty-ninth wall.
139	R 60.50	18	Center of twenty-ninth opening.
140	R 62.30	15.8	Top of thirtieth wall.
141	R 65.30	27.8	On thirtieth wall.
142	R 65.40	29.4	On thirtieth wall; incurve.
143	R 61.55	38.2	On thirtieth wall; incurve.
143 to 144	R 41.30	41.9	On thirtieth wall; incurve.
145	R 9.45	54.4	On thirtieth wall; incurve.
146	L 10.40	60.2	On thirtieth wall.
147	L 14.30	31.1	On thirtieth wall.
146 to 148	L 49.30	68.7	On thirtieth wall; incurve.
149	L 35.51	61.8	End of thirtieth wall, on top; outcurve.
150	L 34.45	30	End of thirtieth wall, at bottom.
151	L 15.10	65	Beginning (at bottom) of thirty-first wall, on edge of ravine, opposite Sta. 149.

STATIONS.	BEARING.	DIST.	
152	L 12.40	45.8*	End of spur, on edge of ravine, below Sta. 153.
153	L 10.30	52.8	Top of thirty-first wall, above end at Sta. 151, 13.5* feet from latter.
154	R 28.15	87	On thirty-first wall.
155	R 48.15	49.8	End of thirty-first wall, on top.
156	R 59.45	48	End of thirty-first wall, at bottom of ravine.
157	R 53.54	49.3	Top of thirty-second wall.
158	R 48.06	29.9	On thirty-second wall.
159	R 40.50	35.5	On thirty-second wall.
160	R 33.50	43.2	On thirty-second wall; outcurve.
160 to 161	R 23.05	54.2	On thirty-second wall; outcurve.
162	R 41.45	43.2	On thirty-second wall; outcurve.
163	R 59.25	53.7	End of thirty-second wall, on top; outcurve.
164	R 61.05	49	End of thirty-second wall, at bottom of ravine.
165	R 49.15	56.5	Top of thirty-third wall.
166	R 43.45	30.2	On thirty-third wall.
166 to 167	L 28.30	33	On thirty-third wall; incurve.
168	L 41.30	29	On thirty-third wall; incurve.
169	L 36.15	33.4	End of thirty-third wall, on top.
169x	L 36.15	49.2	End of thirty-third wall, at bottom.
170	L 27.15	15.2	Center of thirty-third opening.
171	L 16.30	18.5	Top of thirty-fourth wall.
172	R 12.45	49	On thirty-fourth wall.
173	R 52.20	63.4	End of thirty-fourth wall, on top.
174	R 73.22	46	End of thirty-fourth wall, at bottom.
175	R 75.50	44.9	Center of thirty-fourth opening.
176	R 66.30	41.3	Top of thirty-fifth wall.
177	R 52.25	78	On thirty-fifth wall.
177 to 178	L 2.20	76	On thirty-fifth wall.
179	L 11.15	66.5	On thirty-fifth wall; incurve.
180	R 1.35	57.4	On thirty-fifth wall; incurve.
181	R 2.42	20.7	End of thirty-fifth wall.
182	R 2.15	15.4	Center of thirty-fifth opening.
183	R 2.00	17.3	Top of thirty-sixth wall.
184	R 2.15	55	On thirty-sixth wall.
185	R 6.45	43.5	End of thirty-sixth wall.
183 to 186	R 26.00	17.1	Center of thirty-sixth opening, south-east corner of fort.
187	R 50.00	56.7	Top of thirty-seventh wall, south-east corner; the so-called "mound;" outcurve.
188	R 62.38	33.6	Center of thirty-seventh opening; outcurve.
189	R 75.45	34.4	Top of thirty-eighth wall; second "mound."
190	R 92.05	50.4	Bottom of second "mound," which is only a higher portion of thirty-eighth wall, and, like those at entrance, not a "mound" at all.

* Check measure, not to be added in.

STATIONS.	BEARING.	DIST.	
190 to 191*	L 29.45	74.3	End of thirty-eighth wall, bottom of ravine.
192	L 40.45	76.7	Top of thirty-ninth wall, top of ravine.
193	L 43.25	58	End of thirty-ninth wall, on top.
194	L 43.15	15.8	Center of thirty-ninth opening.
195	L 44.00	22.1	Top of fortieth wall.
195 to 196	L 32.15	70.5	On fortieth wall; outcurve.
197	L 27.15	70.5	On fortieth wall; outcurve.
198	L 22.30	66.7	On fortieth wall; incurve.
199	L 22.30	52	On fortieth wall; incurve.
200	L 25.25	64.3	End of fortieth wall.
201	L 22.15	20	Center of fortieth opening.
202	L 20.10	22.8	Top of forty-first wall.
203	L 13.40	41.1	On forty-first wall; outcurve.
204	L 8.10	34.6	On forty-first wall; outcurve.
205	L 2.15	35.7	On forty-first wall; incurve.
206	R 2.00	29.3	On forty-first wall; incurve.
207	R 4.05	40	On forty-first wall; incurve.
208	R 4.00	34.4	On forty-first wall.
209	R 5.15	34.8	End of forty-first wall, on top of deep ravine at south side of fort.
209 to 210	L 16.00	91	End of forty-first wall, in bottom of deep ravine.
211	L 34.50	46	Between bottom and top of slope, on forty-second wall.
212	L 36.20	17	Top of forty-second wall, above ravine.
212 to 213	L 97.15	47	On forty-second wall; incurve.
214	L 107.14	32.3	On forty-second wall.
215	L 106.45	42.1	End of forty-second wall; outcurve.
215 to 216	L 59.35	16.2	Center of forty-second opening.
217	L 42.40	19.1	Top of forty-third wall.
218	L 33.00	58.1	On forty-third wall.
218 to 219	L 57.15	48.8	End of forty-third wall, at bottom of ravine; incurve.
220	L 84.30	33.2	Top of forty-fourth wall, above ravine.
221	L 123.45	90.0	On forty-fourth wall.
221 to 222	L 137.15	54.2	On forty-fourth wall.
223	L 129.10	55	End of forty-fourth wall.
224	L 124.15	16.4	Center of forty-fourth opening.
225	L 120.00	11.8	Top of forty-fifth wall.
226	L 95.25	84	End of forty-fifth wall, bottom of ravine.
227	L 84.30	48	Top of forty-sixth wall, top of ravine.
228	L 74.30	61	On forty-sixth wall.
229	L 62.45	77.8	On forty-sixth wall.
230	L 55.30	82.6	End of forty-sixth wall.
231	L 54.00	18.2	Center of forty-sixth opening.
232	L 52.25	26.8	Top of forty-seventh wall.
233	L 47.10	54.4	On forty-seventh wall; outcurve.
234	L 40.45	73	On forty-seventh wall; outcurve.
235	L 30.00	111.8	End of forty-seventh wall, edge of ravine.
235 to 236	R 34.25	58	End of forty-seventh wall, bottom of ravine.
237	R 35.25	28	Top of forty-eighth wall.

* The reading of the needle was reversed at this station to avoid large angles.

STATIONS.	BEARING.	DIST.	
238	R 36.30	53	End of forty-eighth wall, on top.
239	R 37.10	40.3	Center of forty-eighth opening.
240	R 38.00	63	Top of forty-ninth wall. There is a gradual slope to this station from Sta 239, and an abrupt one from this to the next [241].
241	R 38.30	18	Center of forty-ninth opening.
242	R 38.25	25.8	Top of fiftieth wall.
242 to 243	R 32.55	149.5	On fiftieth wall.
244	R 35.00	47	On fiftieth wall.
245	R 38.50	64.2	On fiftieth wall.
246	R 42.00	35.3	End of fiftieth wall, on top.
246 to 247	R 62.45	66	End of fiftieth wall, at bottom, at the north-west corner of "old fort," overlooking the Miami valley.
248	R 86.45	17.7	Middle of a shallow depression, over the angle at corner of fort, leading, by a gradual slope, down to the river.
249	R 97.15	15	Top point of fifty-first wall, which unites here with the fiftieth wall, to form the point or angle [Sta. 248].
250	R 150.30	61.2	Middle of depression in fifty-first wall, where it has crossed a ravine near its head. The hole thus left above has filled up with muck.
251	R 163.30	71.5	On fifty-first wall; incurve.
252	R 160.30	94.5	On fifty-first wall.
252 to 253	R 112.15	54.3	End of fifty-first wall.
254	R 107.20	13.8	Center of fifty-first opening.
255	R 94.45	18.7	Top of fifty-second wall.
255 to 256	R 71.15	97.7	On fifty-second wall.
257	R 73.30	21	End of fifty-second wall, on top.
258	R 87.50	48	Center of fifty-second opening; outcurve.
259	R 85.20	21.7	Top of fifty-third wall.
260	R 88.05	45	On fifty-third wall; outcurve.
261	R 95.00	32.5	On fifty-third wall; outcurve.
262	R 104.45	80.7	On fifty-third wall.
263	R 105.30	34.6	On fifty-third wall; sharp incurve.
264	R 71.30	37.9	On fifty-third wall; incurve.
265	R 55.20	48	On fifty-third wall; incurve.
265 to 266	R 30.15	48.8	End of fifty-third wall, on top, incurve
266 to 266x	R 30.15	24.5	End of fifty-third wall, at bottom.
265 to 267	R 37.20	14.6	[Measured from Sta. 266.] Center of fifty-third opening.
268	R 44.40	9.7	Top of fifty-fourth wall.
269	R 61.00	19.3	On fifty-fourth wall.
270	R 106.10	67.2	On fifty-fourth wall; incurve.
271	R 113.10	32.9	On fifty-fourth wall; incurve.
272	R 113.12	45.6	On fifty-fourth wall; incurve.
273	R 110.40	26.1	On fifty-fourth wall; incurve.
274	R 104.20	27	On fifty-fourth wall; incurve.
274 to 275	R 34.00	35.5	On fifty-fourth wall; outcurve.
276	R 69.45	38.2	On fifty-fourth wall; outcurve.
277	R 81.45	45.3	End of fifty-fourth wall; incurve.
278	R 82.30	18.9	Center of fifty-fourth opening.

STATIONS.	BEARING.	DIST.	
279	R 83.00	14.2	Top of fifty-fifth wall.
280	R 83.35	50.4	On fifty-fifth wall; incurve.
281	R 77.55	47.6	On fifty-fifth wall; incurve.
282	R 69.50	44.7	On fifty-fifth wall; incurve.
282 to 283	R 6.10	117.7	End of fifty-fifth wall.
284	R 10.45	17	Center of fifty-fifth opening.
285	R 20.30	30	Top of fifty-sixth wall. This is what is usually given as a "mound," at the west of the entrance to "old fort"
286	R 34.30	48.8	End of wall fifty-six, on top, next to road at entrance.
286 to 287	R 102.45	28*	Center of fifty-sixth opening, the entrance to old fort.
288	R 63.30	20.8	Bottom of fifty-sixth wall.
102	R 98.30	54.2*	[Measured from Sta. 286.] On twenty-third wall.
289	R 8.45	65.6	[Measured from Sta. 288.] Top of ravine between fifty-sixth wall, the last of the old fort, and fifty-seventh wall, the first (on the west) of the new fort (going from the south). There is no indication of artificial work between fifty-sixth wall and the ravine.
			[Measured from Sta. 286, it is 34.9 feet to bottom of wall; thence, in same line, 44.2 feet to Sta. 289.]
290	R 8.45	99.4	Beginning of fifty-seventh wall, on opposite side of ravine. The wall has caved back to some extent from the washing out of the ravine.
291	R 12.25	40	On fifty-seventh wall.
290 to 99	R 122.00	123*	Across isthmus, to last wall of new fort, on the east.
291 to 292	R 31.45	78.4	On fifty-seventh wall.
293	R 26.00	57.6	On fifty-seventh wall; slight incurve.
294	R 20.10	34.6	On fifty-seventh wall; incurve.
295	R 11.45	26.6	On fifty-seventh wall; sharp incurve.
296	R 3.15	26.2	On fifty-seventh wall; slight outcurve.
297	L 8.05	37.1	On fifty-seventh wall; slight outcurve.
298	L 19.15	50	On fifty-seventh wall; incurve.
298 to 299	L 55.30	24	Highest point on fifty-seventh wall, overlooking valley; very sharp turn in wall.
300	L 31.45	14.7	End of fifty-seventh wall.
301	L 3.00	20.7	Center of fifty-seventh opening.
302	R 14.10	17.9	Top of fifty-eighth wall.
303	R 38.15	56.5	On fifty-eighth wall.
304	R 46.00	56.9	On fifty-eighth wall; incurve.
305	R 46.15	63.9	On fifty-eighth wall; incurve.
306	R 47.15	159.8	On fifty-eighth wall.
307	R 46.45	31.6	On fifty-eighth wall, at middle of a depression where wall has been built across head of a ravine, which has filled in level above.

* Check measure, not to be added in.

STATIONS.	BEARING.	DIST.	
308	R 46.10	71.7	End of fifty-eighth wall.
309	R 47.29	25.1	Center of fifty-eighth opening.
310	R 47.45	16.8	Top of fifty-ninth wall.
311	R 48.10	48.7	On fifty-ninth wall; incurve.
311 to 312	R 26.25	91.7	On fifty-ninth wall; incurve.
313	R 33.15	57.6	On fifty-ninth wall; incurve.
314	R 35.25	36.8	On fifty-ninth wall; incurve, and middle of depression.
315	R 32.00	54.4	End of fifty-ninth wall, incurve.
316	R 31.00	15.1	Center of fifty-ninth opening.
317	R 30.50	21.9	Top of sixtieth wall; outcurve.
318	R 33.45	42.7	On sixtieth wall.
319	R 36.30	104.2	On sixtieth wall.
320	R 36.00	49.5	On sixtieth wall; incurve above ravine.
320 to 321	L 5.00	50	End of sixtieth wall, at bottom of ravine; sharp incurve.
322	L 15.15	43	Top of sixty-first wall, above ravine.
323	L 18.45	50.5	End of sixty-first wall.
324	L 18.45	12	Center of sixty-first opening.
325	L 18.20	17.3	Top of sixty-second wall.
326	L 14.15	44.8	On sixty-second wall; outcurve.
327	L 12.00	59	End of sixty-second wall.
328	L 9.45	16.7	Center of sixty-second opening.
329	L 7.45	16	Top of sixty-third wall.
330	L 5.10	20.4	End of sixty-third wall, at top of ravine.
330 to 331	R 12.45	50	End of sixty-third wall, on slope of ravine. Wall seems to have been built across the ravine, and been washed out, the wall on opposite side deflecting the water against this wall. The slope is very steep on both sides.
332	R 3.00	34	Bottom of ravine; beginning of sixty-fourth wall.
333	0	74	Top of sixty-fourth wall, at top of ravine.
334	L 7.50	24.2	On sixty-fourth wall; sharp incurve.
335	L 24.15	47.5	On sixty-fourth wall.
336	L 40.00	59.8	End of sixty-fourth wall; outcurve.
337	L 41.10	16.2	Center of sixty-fourth opening.
338	L 40.15	16.4	Top of sixty-fifth wall.
338 to 339	0	81.4	End of sixty-fifth wall, at bottom of ravine.
340	L 21.15	43.8	Top of sixty-sixth wall, top of ravine; incurve.
341	L 35.00	40	End of sixty-sixth wall; incurve.
342	L 35.10	10.4	Center of sixty-sixth opening.
342x	L 51.45	37.9	Bottom of sixty-sixth and sixty-seventh walls, which run out nearly parallel at their ends; with a slight depression as an opening, and unite in a rounded wall at the bottom.
343	L 34.05	15.2	[Measured from Sta. 342.] Top of sixty-seventh wall.

STATIONS.	BEARING.	DIST.	
344	L 12.35	71.9	End of sixty-seventh wall.
345	L 8.35	20	Center of sixty-seventh opening.
346	L 6.00	24	Top of sixth-eighth wall.
347	L 0.20	51.5	On sixty-eighth wall; slight outcurve.
347 to 348	R 27.30	62.5	End of sixty-eighth wall.
349	R 29.50	19	Center of sixty-eighth opening.
350	R 31.30	31.2	Top of sixty-ninth wall.
350 to 351	R 46.15	62.8	End of sixty-ninth wall, at top of deep ravine.
351 to 352	R 22.40	53	End of sixty-ninth wall, on slope of deep ravine.
353	R 13.45	90	Beginning of seventieth wall, on slope of deep ravine.
353 to 354	R 35.35	44.8	On seventieth wall, on slope of deep ravine; incurve.
355	R 8.30	64	On seventieth wall, at top of deep ravine; sharp incurve, making almost a right angle.
355 to 356	L 71.45	107.6	On seventieth wall; slight outcurve.
357	L 78.15	115	End of seventieth wall; slight outcurve; edge of ravine.
358	L 69.25	56.8	Top of seventy-first wall, on edge of washout.
359	L 53.00	74	End of seventy-first wall.
360	L 49.05	19	Center of seventy-first opening.
361	L 44.10	23.5	Top of seventy-second wall.
362	L 35.50	49.5	On seventy-second wall.
363	L 26.25	85.6	End of seventy-second wall, above pike.
364	L 21.20	51.8	Top of seventy-third wall, above pike, on north side.
365	L 21.30	35.7	On seventy-third wall; sharp outcurve.
365 to 366	R 20.35	41.7	End of seventy-third wall; sharp outcurve.
367	R 29.45	27.5	Center of seventy-third opening; sharp outcurve.
368	R 41.45	22	Top of seventy-fourth wall; sharp outcurve.
368 to *	R 3.45	113.5*	Back sight to a point at the bottom of inside slope of seventy-third wall, where pike has cut off the end.
369	R 114.35	53.4	On seventy-fourth wall.
370	R 113.00	68.2	On seventy-fourth wall.
371	R 115.30	56.7	End of seventy-fourth wall; incurve.
371 to 372	R 78.25	41	Middle of seventy-fourth opening [ravine].
373	R 67.40	43	Top of seventy-fifth wall.
374	R 68.30	8.9	Center of seventy-fifth opening.
375	R 72.15	21.7	Top of seventy-sixth wall.
376	R 76.25	83.9	On seventy-sixth wall.
376 to 377	R 88.15	28.2	End of seventy-sixth wall, top of ravine.
378	R 90.15	37	End of seventy-sixth wall, slope of ravine.
379	R 86.45	31	Top of seventy-seventh wall, slope of ravine.

* Check measure, not to be added in.

STATIONS.	BEARING.	DIST.	
380	R 84.50	43.8	Top of seventy-seventh wall, top of ravine; outcurve.
380 to 381	R 79.45	206	End of seventy-seventh wall.
381 to 382	R 80.05	18	Center of seventy-seventh opening.
383	R 75.35	23.8	Top of seventy-eighth wall.
384	R 80.15	132.2	On seventy-eighth wall.
384 to 385	R 85.50	70.3	End of seventy-eighth wall; outcurve.
386	R 87.15	15.4	Center of seventy-eighth opening.
387	R 84.05	22	Top of seventy-ninth wall.
388	R 81.30	61	On seventy-ninth wall; slight outcurve.
389	R 81.30	160.5	End of seventy-ninth wall; outcurve.
389 to 390	R 90.15	18.4	Center of seventy-ninth opening.
391	R 93.05	21.4	Top of eightieth wall.
392	R 98.45	61.2	On eightieth wall.
393	R 99.00	142	End of eightieth wall.
394	R 99.05	22.6	Center of eightieth opening.
395	R 99.00	37.8	Top of eighty-first wall.
395 to 396	R 98.00	80.8	End of eighty-first wall.
396 to 397	R 93.35	28	Center of eighty-first opening.
398	R 94.15	28	Top of eighty-second wall.
398 to 399	R 87.55	47.8	On eighty-second wall; outcurve.
399 to 400	R 98.00	25.8	On eighty-second wall, sharp outcurve.
401	R 117.15	30.8	End of eighty-second wall; sharp outcurve.
402	R 130.15	29.9	Center of eighty-second opening.
402 to 403	L 18.05	31	Top of eighty-third wall.
403 to 404	L 15.45	75.7	End of eighty-third wall.
405	L 15.45	27.8	Center of eighty-third opening.
406	L 14.05	28.4	Top of eighty-fourth wall.
406 to 407	L 9.15	93	End of eighty-fourth wall, at pike.
0	L 8.00	65	Point of beginning.

The total length of wall, on top, 18,712.2 feet; equal, in miles, approximately, to $3\frac{1}{2}$; $3\frac{6}{11}$; $3\frac{31}{57}$; $3\frac{99}{182}$; $3\frac{330}{239}$; or precisely $3\frac{59}{660}$.

NOTE—In stating the number of openings in the fortification, we include the natural washes and breaks.

Of the 84 openings, 9 are natural washouts, and 74 are designed entrances (gateways), or for purposes of defense.

